August 21, 1961

# PULP & PAPER

SPECIAL REPORT


Clean Streams: Industry goal in avoiding pollution . . . . . 47

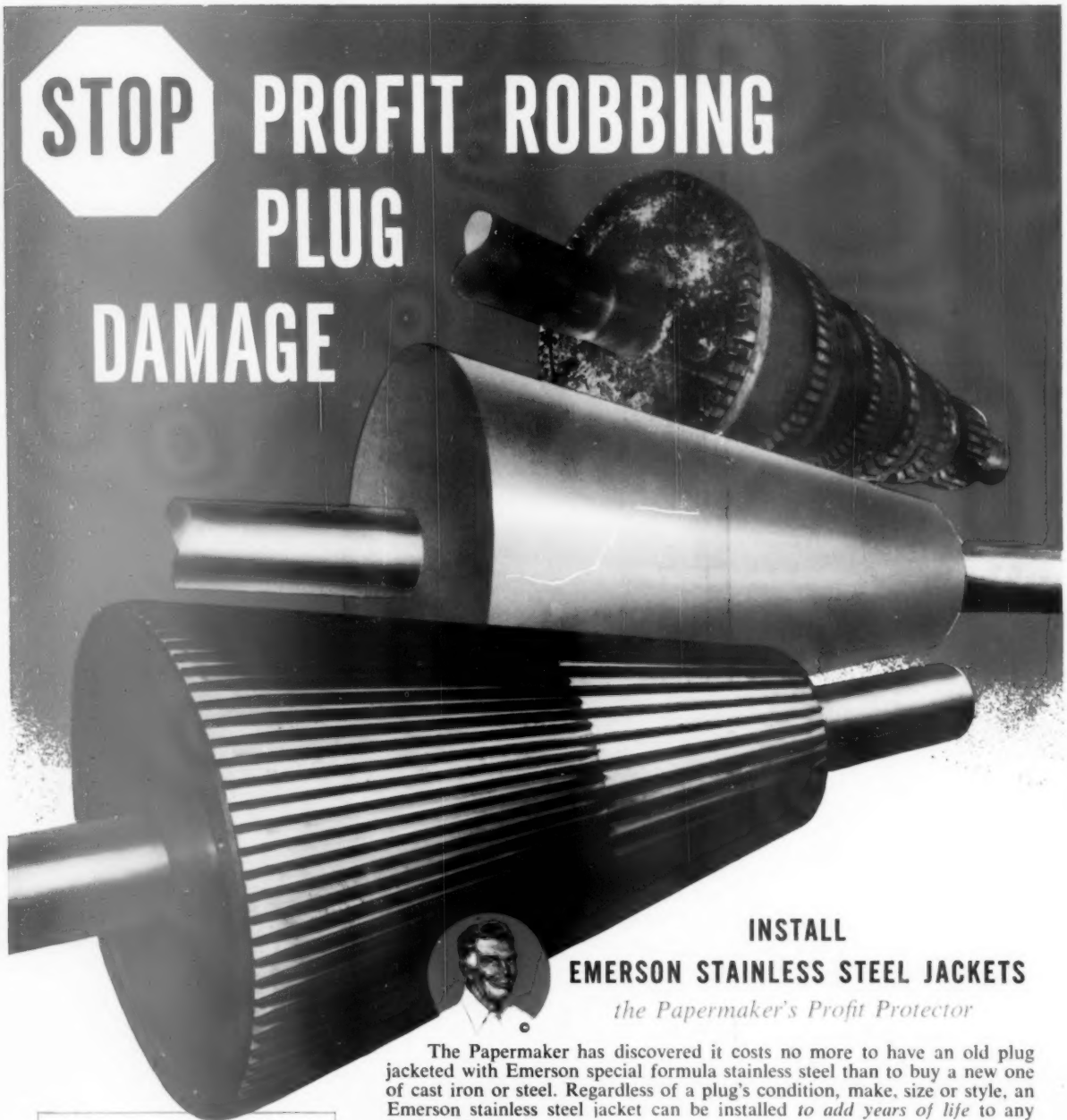
Nuclear power is sought by 4 companies 5

Train-ups prepare crews for 9 paper machines 54

Hot calendering improves coated paper finishes 53

Integrated logging — pros and cons probed 69

# STOP PROFIT ROBBING PLUG DAMAGE



## INSTALL
## EMERSON STAINLESS STEEL JACKETS

*the Papermaker's Profit Protector*

The Papermaker has discovered it costs no more to have an old plug jacketed with Emerson special formula stainless steel than to buy a new one of cast iron or steel. Regardless of a plug's condition, make, size or style, an Emerson stainless steel jacket can be installed *to add years of life* to any Jordan plug.

Mills coast to coast stop structural damage and corrosion in Jordan plugs by having them completely encased in stainless steel. This exclusive Emerson jacketing process, as a maintenance investment, features new bandless, continuous slotted construction. Any size cutting edge may be used interchangeably in the same plug.

Besides beating plug damage and corrosion, Emerson Stainless Steel Jackets are extremely wear resistant and give far greater built-in strength to the plug. Fillings are changed more easily, more quickly, cutting downtime.

Is Jordan plug damage cutting into your profits? Write today. *The Emerson Manufacturing Co., Division, John W. Bolton & Sons, Inc., Lawrence, Massachusetts.*

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- ★ Container Corporation of America
- ★ Continental Can Company, Inc.
- ★ International Paper Company
- ★ St. Regis Paper Company

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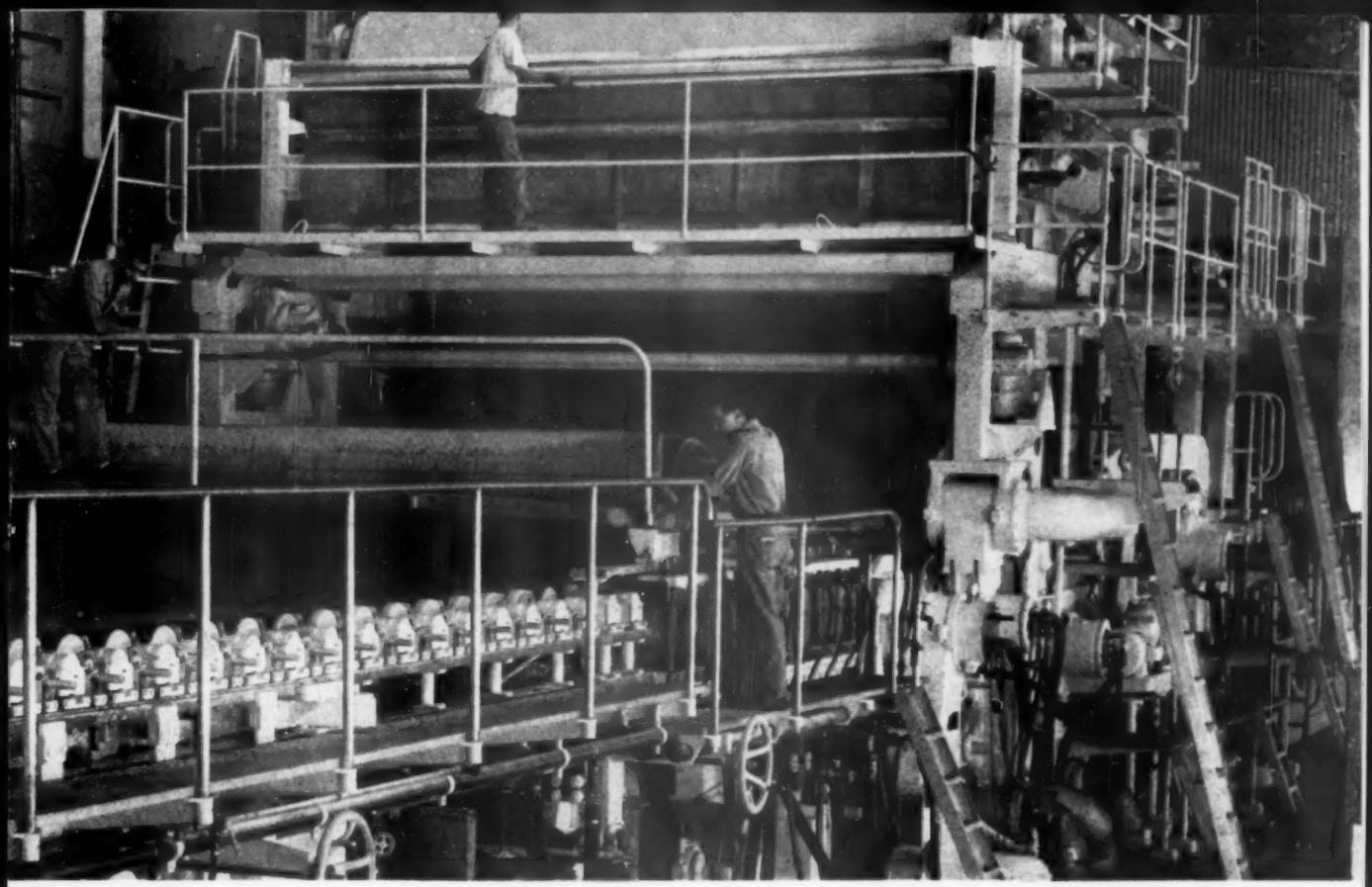

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# How 5 grade changes a day make Glatfelter more competitive

Flexibility is synonymous with Glatfelter's No. 7 188″ machine. Their ability to make up to 5 changeovers ranging from 13 lb. bond to 110 lb. drinking cup stock means orders are shipped within hours, overruns are unnecessary and warehousing is eliminated. Rice Barton engineering has provided this versatility which makes short runs profitable and improves the mill's competitive position.

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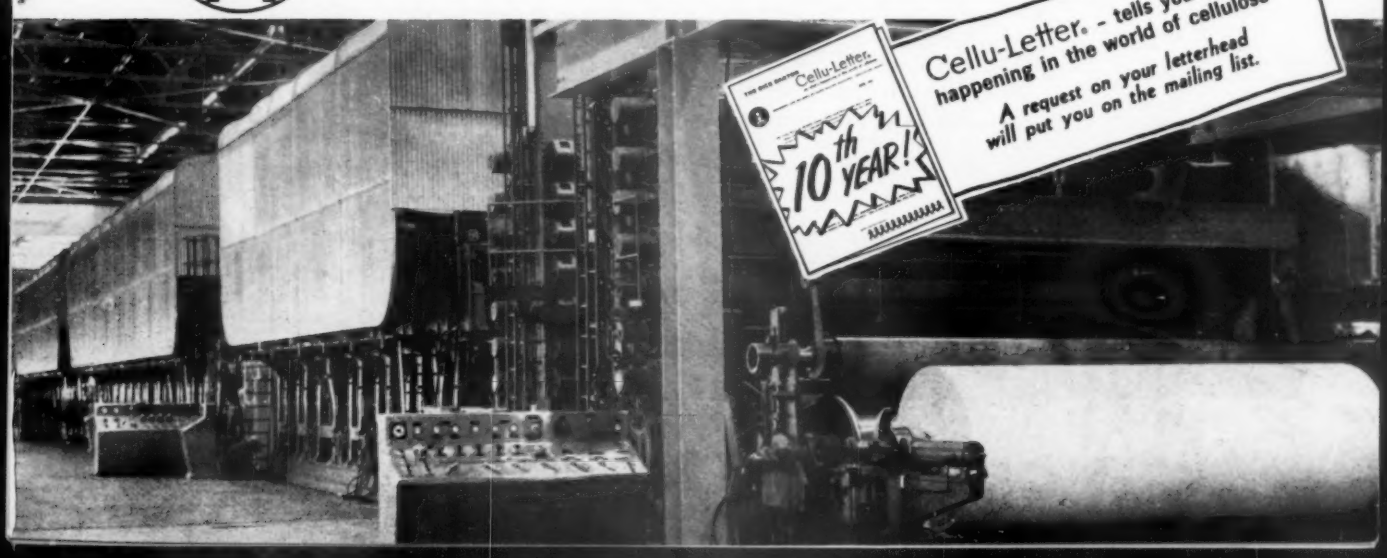
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Cellu-Letter - tells you what's happening in the world of cellulose
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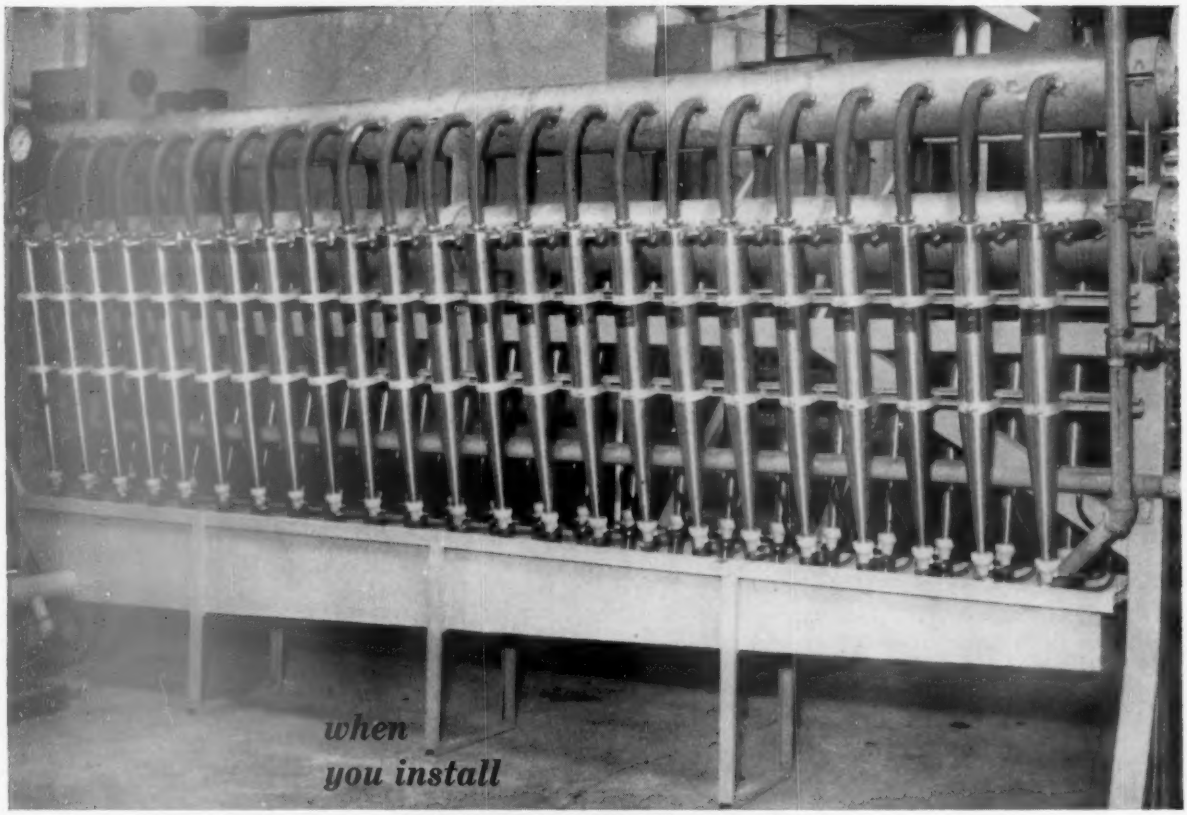
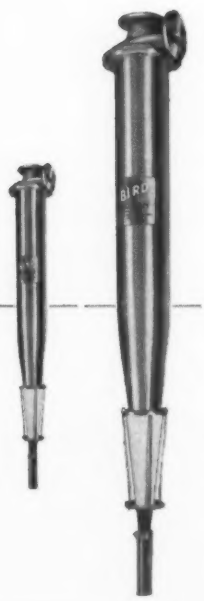



# BIRD CYCLEANS*

- √ *shive count gets slashed*
- √ *dirt count takes a dive*
- √ *breaks are almost banished*
- √ *wires live longer*

*Pictured is part of a battery of 4" Cycleans (36 gpm inlet capacity) equipped with patented, automatic purge tips that do not plug.




*NEW!*

*7" Cyclean* (120 gpm inlet capacity)
*12" Cyclean* (500 or 850 gpm)
equipped with *Baffle Head* that prevents ingress of air — air goes out with the rejects. Note the white sintered ceramic cones — virtually impervious to wear.

**BIRD MACHINE COMPANY**

**SOUTH WALPOLE, MASS.**
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PORTLAND 4, OREGON • ATLANTA 9, GEORGIA
Canadian Manufacturers of Bird Machinery
CANADIAN INGERSOLL-RAND COMPANY, Limited, Montreal

August 21, 1961 PUBLISHED EVERY OTHER WEEK

VOLUME 35, NUMBER 17

PULP & PAPER

# PULSE OF THE INDUSTRY

**NEWS DIGEST** ..... 5

**POWER**

Four mills want to buy federal nuclear power — one bidder will get it ..... 5

**BUSINESS**

Pulp, paper still waiting for its 'recovery' ..... 9

Seven-day week gains in eastern Canada ..... 9

**INDUSTRY GROWTH**

K-C adds two blade coaters at Kimberly ..... 11

**LEGISLATION**

Industry wary of new anti-pollution law ..... 13

**RESEARCH & TECHNOLOGY**

Research becoming customer-oriented ..... 13

Interface-detection technique called simple ..... 15

Continuous pulping studied at Howard Smith ..... 15

**EDUCATION**

Paper marketing course gains in prestige ..... 17

**INTERNATIONAL**

Swedish cooperative buys two big mills ..... 17

Canada chary of British EEC membership ..... 19

Kruger group moves into Colombia ..... 19

**MERGERS**

CZ seeks rehearing on divestiture order ..... 19

**PULPWOOD MANAGEMENT**

Tax boost forces untimely timber cut ..... 21

Special barges move Queen Charlotte logs ..... 21

Hardwood management studied in Ohio ..... 21

**PEOPLE**

Top level changes occur at IP's Southern Kraft ..... 27

Blandy retires from American Wood Board ..... 27

NY&P realigns Johnsonburg management ..... 27

Menasha Wooden Ware fills two top posts ..... 82

U. of Maine Foundation elects officers ..... 82

## FEATURES

OUR STREAMS, of necessity, have become the depositary of pollutants from myriad industrial processes. A special report tells how pulp and paper has cut dramatically its waste load ..... 47

HIGH GLOSS CALENDERING: How it improves finishes on coated papers and boards ..... 53

SUPERVISION METHODS: Before breaking in a new machine, consider West Virginia's train-ups method for sharpening crews ..... 54

WHAT TOMORROW HOLDS for pulp and paper, a provocative and important topic, is explored by Scott's Baldwin ..... 57

HIGH-BRIGHTNESS, three-stage bleach plant of Rhinelander can produce 120 tons a day ..... 60

PULPWOOD WORLD: Integrated logging is hotly debated by a panel of experts ..... 69. Consumption of pulpwood increased substantially last year ..... 71

## DEPARTMENTS

Meetings ..... 31

How to do it ..... 59

New equipment ..... 25, 76

Strictly personal ..... 82

Staff listing ..... 93

The last word ..... 98

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# Belt carries 3½ million pounds of wet pine chips a day

## "Riffle Grip" belt takes chips up incline, does it fast

THAT belt carries wet pine chips from an elevator belt to storage silos in an Arkansas paper mill. But, several years ago, when the capacity of the chipper was increased by 20%, the smooth belt being used couldn't carry chips away fast enough. They'd slip back on the belt, pile up at the unloading area, tumble back down the elevator shaft.

The plant superintendent took his problem to a B.F.Goodrich distributor, who recommended the BFG "Riffle Grip" conveyor belt. The belt is made with a series of extra-tough rubber ridges molded into the cover. The tread that these ridges form holds the chips in place on the belt, takes them up the incline, doesn't let them slip back.

The B.F.Goodrich belt completely solved the problem, permits higher belt speed, and a 20% increase in production. It's been in use over three years now, handling 3½ million pounds of chips in an average day.

B.F.Goodrich distributors have exact specifications for the B.F.Goodrich conveyor belt described here. And, as factory-trained specialists in rubber products, they can answer your questions about the many products B.F.Goodrich makes for industry. *B.F.Goodrich Industrial Products Company, Dept. M-178, Akron 18, Ohio.*

**B.F.Goodrich**

**CONVEYOR BELTS**

PULP & PAPER

# NEWS DIGEST...

**Outlook is better for pulp-paper**
as economy improves. Despite fact that industry lags behind economy, insiders say chances are good that, prodded by gains in employment, housing starts and rise in GNP and personal income, the industry will produce about 35 million tons in 1961. Operations are now at 90% level of capacity. See "Business," page 9.

**Stepped up activity in blade coating**
is typified in news that Kimberly-Clark Corp. has doubled its capacity to produce machine-coated printing grades by the blade process, by early 1962 will produce about two-thirds of its coated printing papers by blade. Four are conversions, one is a new machine. See "Industry Growth," page 13.

**Customer-oriented research is high**
in industry's activities today. Item: Time Inc.'s Paul Thoma stresses changing concept from development of wider, faster and more efficient machines and extending it to customer's needs. Item: Added importance of research is underscored by The Mead Corp. Eyeing its $4.5 million research lab, Mead says measure of a company is measured not only in its profit and loss statements, but also in its research program. See "Research," page 13.

**Cotton linter pulp price increase**
of $13/ton has been made by Buckeye Cellulose Corp. Boost is effective immediately and was caused by increase in second-cut linter price. One observer sees little hope for price increase in market woodpulps at present time.

**Tax boost ups timber cut**
and forces Weyerhaeuser Co. to change signals on its sustained yield program in Clark County, Wash., and accelerate its timber harvest there. Implications, if such a thing spreads, are serious and could jeopardize long range private ownership of timber. See "Pulpwood Management," page 21.

**Diversification trend through mergers**
continues as Standard Packaging Corp. enters facial tissue field with purchase of Golden Fleece Tissue Mills. Industry is also watching results of Crown Zellerbach's efforts to seek rehearing of FTC decision that it divest itself of St. Helen Pulp & Paper Co. See "Mergers," page 19.

**Pulp expansion in Scandinavia**
is stimulated by active European market. Swedish forest owners' cooperative, comprising several thousand forest owners, who have combined to build pulp mills, continues to grow with purchase of two more pulp mills. See "International," page 17.

**Big increase in newsprint capacity**
is possibility as Quebec newsprint mill managements win tentative agreements with unions over 7-day-week operations. Under present conditions, this extra capacity, estimated at 750,000 tons, is not needed. But "dam has been breached," says one observer, although it may be two years before it happens.

EXCLUSIVE . . . . . POWER

# Four bids for nuclear power

## One mill will be chosen for first atomic steam generator

By ALBERT W. WILSON, Editor, PULP & PAPER

NEW YORK—There has been a quick response to the exclusive article in PULP & PAPER June 12 detailing a pay-as-you-go nuclear power plant offer to the pulp and paper industry. Four paper companies in New England and the Middle West have bid for this first government-built steam-producing pressurized water reactor to be offered to any industry.

Fitchburg Paper Co. of Massachusetts, Franconia Paper Co. of New Hampshire, Huss-Ontonagon Pulp & Paper Co. of northern Michigan Peninsula and Shawano Paper Co. (pronounced "Shaw-no") of northern Wisconsin, have made bids for the first use in this hemisphere of atomic power for production of paper. The only other place in the world where such use of atomic power might materialize first is Norway.

"When we first read about this plan in PULP & PAPER magazine, we were

*Paper sculpture by Giuseppe Baggi*

*Pulp from Gottesman means...*

# TECHNICAL SERVICE!

*Bleached and Unbleached Sulphite • Bleached Hardwood • Groundwood*
*Bleached, Semi-Bleached, and Unbleached Kraft*

## GOTTESMAN–CENTRAL NATIONAL ORGANIZATION

WOOD PULP G

PULP PAPER EXPORT CNC

Established 1886

Gottesman & Company, Inc. • Central National Corporation
Central National Commercial Company, Inc.
100 Park Avenue, New York 17, N. Y.

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immediately interested and we contacted the Atomic Energy Commission," said George R. Wallace III, president of Fitchburg.

One of the four paper companies had been approached locally, before PULP & PAPER's article was published, but the others first learned of the plan in the June 12 issue. AEC had set a June 19 deadline but agreed to accept bids later because the full story, as published in this magazine, could not be officially cleared for an earlier issue.

**These bids do not commit** the paper companies but are actually expressions "of interest." AEC will investigate the conditions and decide where such a plant should be built. The first one would be completed in a little over three years—by late 1964 or early 1965. The government offers to build the reactor, a low pressure process heat plant operating at a thermal power of 30,000 to 40,000 kilowatts, alongside the paper mill, selling it steam on an interrupted basis. Then, in five to ten years, the paper company may, or may not, buy the reactor at a greatly depreciated price.

**Only one reactor plant** will be built now. Ultimately, there is a chance that all four of these paper mills will be able to have government-built nuclear process steam plants.

But PULP & PAPER has learned reliably that only one will be chosen after AEC has made further investigations of the four applicants. This is because of limited funds allotted to the project. One such plant will cost $4,000,000 to $4,500,000 and this is as much as AEC can spend at this time.

AEC will go to each company for more detailed proposals. It will

GEORGE R. WALLACE III; "The article in PULP & PAPER caused us to investigate and we became enthusiastic bidders for the reactor plant."

want to negotiate with them for an actual fixed price for the nuclear-produced steam. Up to now, there have only been estimates, although with assurances that in high power cost areas the price would be attractive. Deciding on which of these four mills will get the atomic plant is likely to be a rather long process.

"We feel we are in a good position to meet the terms and conditions laid down by the Federal government for this project," Mr. Wallace said. "Our company is eager to take part in this pioneering program and to be a subject for experimentation. We know that atomic energy will come—sooner or later—to this industry."

**Fitchburg Co. Paper Co. plans** to give full particulars of the project to its employes, assuring them that every precaution will be taken to make the plant completely safe, in accordance with the most modern reactor plant construction and operation techniques.

The other paper companies have indicated a similar interest and desire to participate. It is the first real opportunity for industries of their size to participate in the atomic energy program, except for Dairyland, Inc., a cooperative association of dairies in western Wisconsin, Minnesota and Iowa. The dairies already have signed on the dotted line and will jointly benefit from a reactor that AEC is building at a central power plant in western Wisconsin, which they jointly own. However, this is for electric power—the paper mill project is the first for steam.

**New England and the Midwest** have been regarded all along as the areas in which pulp and paper interest in the offer would run the highest. This is because they are relatively high cost power and steam areas. Builders of the reactors assured PULP & PAPER that the costs at which nuclear steam would be sold would be cheaper than coal or oil costs in eastern areas where these fuels must be transported long distances. In the Far West and in the South, where cheap natural gas is available, there was no expectation that any of the mills would respond at this time.

From the government's point of view, the plant must be a "demonstration unit." For this reason, the paper mill must expect an interrupted service. It should have other power sources or standbys.

In the case of Fitchburg, Mr. Wallace said "the nuclear reactor would supersede the oil-fueled power plant which we now have. This, however, would be a standby source of power."

In Norway, an atomic energy company, Noratom, has been in existence for some time and five pulp and paper companies are participants. Their reactor plant will be built near one of the five mills, possibly before the American plant is completed.

Allis-Chalmers Mfg. Co. has designed the plant and will build it.

**Nuclear-plant experience** will be gained by the paper company user, so that it will be able to evaluate the economic outlook for nuclear power in its mills.

The cost of the uranium burned will be about 20 to 22 cents per million Btus and improvements should reduce this, according to the plant's designers. It is impossible to burn all fuel in a reactor. Periodically, the fuel elements must be removed, the uranium purified and makeup fuel made into a new fuel element. Total cost of preparation and transportation is about equal to the fuel cost itself, so that direct fuel cost for the reactor will total about 42 cents per million

Egan

Leaf

Huss

CHARLES N. EGAN is president, and ROBERT L. LEAF JR. is vice president and resident manager, of the Shawano Mill, which might get a reactor. ALVIN HUSS is president of Huss-Ontonagon Board Mill, another bidder.

# Fluid Power news

OILGEAR 40 Years of Fluid Power

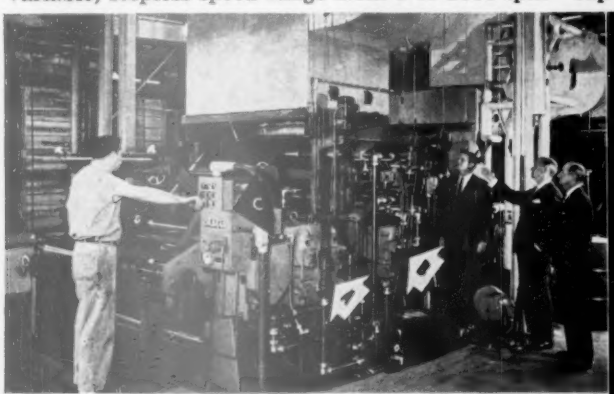
Report No. 11,806 From Oilgear *Application-Engineering* Files

## HOW OILGEAR HEAVY-DUTY *Any-Speed HYTAC** DRIVE SYSTEMS ON *Anaconda's* NEW FOIL LAMINATING AND COATING MACHINES HELP SPEED PRODUCTION—CUT COSTS

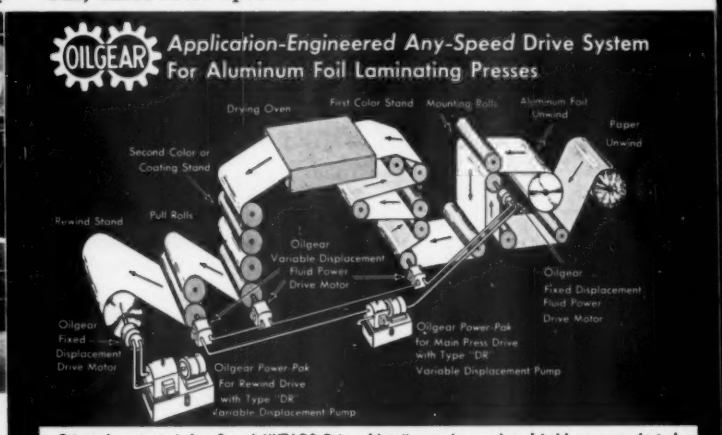
**USER:** *The Anaconda Aluminum Company, Louisville, Kentucky, Fair Lawn, New Jersey, Terre Haute, Indiana*
*(Machine Builder — New Era Manufacturing Company, Hawthorne, New Jersey — successor to Meisel Press Manufacturing Company, Boston, Mass.)*

**PROBLEM:** Main and Rewind Drive Systems for two, new, high-speed laminators to bond aluminum foil as thin as 0.0002" to paper stock ranging from 15-lb tissue to 0.020" carton and food board. In addition to laminating, these "presses" must simultaneously coat and/or color the foil.

**REQUIREMENTS:** 1. Accurate, wide range, dependable tension control to accommodate *Anaconda's* complete range of laminating foils and paper stock. 2. Infinitely variable, stepless speed range from 0 to 1000 fpm—capable of an optimum, continuous 850 fpm running speed. 3. Maintain tension accurately in "stall" condition indefinitely without overheating—and then pick up speed smoothly and quickly without snapping the sometimes fragile web. 4. Reduce costs through reduction of scrap, repair parts inventories, and machine downtime . . . operate at nearly three times former production speeds. 5. Must be: compact, to conserve valuable floor space; economical on electric power input; capable of continuous, three-shift operation.



**ABOVE:** One of Anaconda Aluminum's new, Oilgear-equipped, high-speed foil laminating and coating presses—rewind end—as installed at their Louisville, Kentucky, Laminating Plant. Roll cores—8¾" dia. . . . web width—from 23" to 52" . . . roll diameters—to 60" . . . roll weights—to 4500-lb. Tension range—from ½-lb/in. to 4-lb/in. depending on weight of lamination being processed. Arrows (A), (B)—Oilgear Variable Displacement Drive Pumps. Arrow (C)—one of two pushbutton control stations at opposite ends of the press—3 emergency "stop" buttons are located at other positions.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Application-Engineered Any-Speed Drive System
For Aluminum Foil Laminating Presses
Drying Oven
First Color Stand
Mounting Rolls
Aluminum Foil Unwind
Paper Unwind
Second Color or Coating Stand
Rewind Stand
Pull Rolls
Oilgear Variable Displacement Fluid Power Drive Motor
Oilgear Fixed Displacement Fluid Power Drive Motor
Oilgear Fixed Displacement Drive Motor
Oilgear Power-Pak for Main Press Drive with Type "DR" Variable Displacement Pump
Oilgear Power-Pak For Rewind Drive with Type "DR" Variable Displacement Pump

Oilgear's patented *Any-Speed HYTAC** Drives (details not shown above) hold any preselected speed within ±0.1% under constant torque loads—within ±0.5% regardless of load, electric power variations, or temperature and viscosity changes . . . provide cushioned starting, remote jogging and threading . . . smooth, even let-off or build-up tensions . . . constant torque . . . adjustable tension . . . hydrodynamic braking. Applied to center shaft winders, *Any-Speed HYTAC** Drives automatically sense and compensate for changes in overall machine speed, and can automatically provide constant, adjustable, or tapering tension over a 20:1 winding range without dancer or follower rolls.

*HYTAC—A registered Oilgear Trademark

**SOLUTION:** Oilgear *Any-Speed HYTAC** Main and Rewind Drive and Tension Control Systems—as symbolized in the schematic sketch—above right. These compact, heavy-duty systems have successfully met or exceeded all originally specified requirements in continuous, three-shift, high-speed operation. Oilgear Drives were selected for these new machines because of: 1. The enviable record of maintenance-free long-life in several Anaconda Aluminum Plants. For example—six out of seven original, 300-fpm laminating presses at Louisville are Oilgear-equipped . . . two operating continuously since 1946. These 14-year-old drives—and two others—*have NEVER required maintenance other than oil changes and an occasional drive shaft seal.* The other two Oilgear Drives—installed in 1948—were disassembled three years ago merely for a preventive maintenance check—haven't been "touched" since. 2. Oilgear's accurate, dependable tension and speed control over a wide range—for smooth, precise, trouble-free operation on Anaconda's *entire range* of laminating stocks. 3. Space saving—Oilgear Drives occupy less floor space . . . do not require high-speed blowers for cooling—can hold stall-speed indefinitely without overheating. 4. Economy—in electrical power input, maintenance, virtually eliminate costly machine downtime and spare parts inventories . . . and in many cases—at lower installed cost.

Unbelievable?—Not to Oilgear Users! There are case histories upon case histories on file of machines equipped with *Application-Engineered Oilgear Drive Systems* that are rolling along—efficiently, quietly—with over 20 years of trouble- and maintenance-free service! Some additional *installation-proved* reasons . . . the greater accuracy, precision control of speeds, torques, tensions . . . new economies of operation, installation, and valuable floor space . . . are why more and more Oilgear users in the paper, printing and converting, food and beverage, marine, chemical, pharmaceutical, primary metals, metalworking, textile, rubber, military, and other industries all agree that . . .

**for the lowest cost per year . . . it's OILGEAR!**

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*Application-Engineered Fluid Power Systems*
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**Phone: Mitchell 5-6715 . . . Direct Distance Dialing Code — 414**

Btus. Only 2% of nuclear fuel is lost, whereas about 15 to 20% of coal, oil or gas furnace loss goes up the stack. Thus, it is claimed the 42 cents total cost corresponds to about 34 to 36 cents per million Btus for a conventional plant. The kind of reactor offered to the paper companies is the type already in use in power plants and submarines. For a description of the plant see the June 12 issue, pages 57-59.

**Different types of paper mills** are bidding. They are in the range of smaller mills, making special papers. One is a paperboard producer.

Fitchburg is a company dating back to the kerosene-lamp days of 1864, a far cry from modern nuclear power. It makes technical and specialty papers for printing, packaging, office copying and reproduction uses.

The nuclear plant for Fitchburg would be at its Fitchburg, Mass., mill. Capacity production at Fitchburg is 200 tons per day.

George R. Wallace is board chairman; D. D. Uong, vice president, new products; Gilbert Parks vice president, production; and Richard W. Brown, plant engineer. These men, and possibly others, would be involved in the new venture.

Franconia Paper Corp. has capacity for 90 tons per day of sulfite pulp, and 120 tons of paper—bond, ledger, mimeo, offset, duplicating, etc. The mill is at Lincoln, in northeast New Hampshire. Robert Marcalus is president; C. W. Stewart, plant manager; and Richard Osborne, chief engineer.

Huss Ontonagon Pulp & Paper Co., makes semi-chemical pulp (200 tons/day), and kraft linerboard, corrugating and bleached foodboard (120 tons). Alvin Huss is president; Walter Brewer, vice president; Newton Cuneo, resident manager; and Merlin King, chief engineer.

Shawano Paper Mills, a rather isolated mill bordering an Indian reservation in Wisconsin, is rated at 65 tons a day, making tissue, toweling, lightweight papers, several tissue specialties, book and bonds, etc. Charles N. Egan is president and general manager; Robert L. Leaf, Jr., vice president and resident manager; and R. A. Newcomb, chief engineer. ■



# Pulp, paper still waits for pick-up

## which has lifted other industries out of first half's slump

NEW YORK—Pulp and paper is beginning to have some questions as to when it will fit into the strong economy pattern now shaping up for the fourth quarter. The industry usually follows any changes by a few weeks—but it's still waiting to pick up several months after the general economy started moving again. At last count, operating rates were 2% below last year's.

Important midyear gains have been scored in employment, personal income and industrial production. June personal income was up about $3.5 billion from May, the fourth consecutive month to show a gain. Production is more closely geared to demand, reports the U.S. Dept. of Commerce.

The nation isn't in the midst of any boom, but the trend is toward one of the "nicest economies we've had in a long time," says an observer.

**Biggest bugaboo** is that there is no large capital-spending program on the horizon. Capital spending is strong, but unless it is really big, the economy doesn't boom.

An expert says there never is a good economy unless capital spending is high. He points to capital spending in 1955-56-57, which hit a peak of $37 billion and then fell off to $30.5 billion in 1958. Spending in the second quarter of 1960 was at a rate of $36.3 billion; it dropped to $31 billion, is now $34.6 billion.

A vice president sums up the industry's attitude: "I wish with all my heart I could tell you that there has been a firming in prices, but I haven't noticed any. Something else I can't find is this business upturn. Maybe we have hit the bottom of the barrel. I hope so."

**A railroad freight-rate boost** might be in the making to worsen the industry's position. The v.p. sees signs that railroads will ask for an increase within 7 to 10 months. He says one reason for present hesitation is the railroads fear they will drive more freight to trucks, but he notes pulp is one commodity that can't be shipped by truck. He doesn't see how pulp companies can ship pulp from the West Coast at $120 a ton and then pick up a 10% freight increase.

**The outlook is good** that the industry, prodded by an improvement in business, will produce in the 35-million tons range. Gross national product, which dropped to about $501 billion in the first three months of this year, bounced back to $515 billion in the second quarter and is expected to move further ahead in the next four months.

But no real money is being made by any pulp and paper company, says another vice president, except those who sell direct to the consumer, such as Scott Paper Co. and Kimberly-Clark. How do you sell linerboard and book papers to consumers, he asks.

A solution found by several companies has been to integrate with these consumer-oriented companies, and thereby to pick up the extra profits being made in the converter and merchant end of the business. ■

# Eastern Canada heads toward 7-day week

VANCOUVER, B.C.—Negotiations between British Columbia pulp and paper companies and unions are likely to continue for some time, but in eastern Canada, where bargaining involves the contentious issue of the seven-day week, considerable headway towards settlement has been made.

British Columbia mills have traditionally operated around-the-clock, and Anglo-Newfoundland Development Co.'s operations are now on a similar basis. But elsewhere the six-day week has prevailed.

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The first Canadian mill, outside British Columbia or Newfoundland, to decide on continuous operation was St. Lawrence Corp. at Red Rock, Ont., which recently signed a two-year contract that also called for 5¢ an hour wage increases. Before this new contract was signed, the basic wage rate was $1.93 an hour.

**Quebec North Shore Paper Co.** associated with Ontario Paper Co., has negotiated a new one-year contract stipulating continuation of the six-day week with a general pay raise of 5¢ an hour, which, with other concessions, brings the base rate to $2.01.

Five other eastern Canadian companies—Anglo-Canadian, Bowaters Mersey, James MacLaren, and St. Lawrence (Three Rivers and Dolbeau mills)—are now negotiating. The seven-day week has been an important issue in the negotiations.

**In British Columbia** the industry was tied up by strike for three months in 1957; operators are hopeful that such a shutdown will not be repeated this year, although conciliation proceedings and the government-supervised strike vote and other formalities may not be determined until late in the Fall. The general economic climate in the industry today is in marked contrast with what it was four years ago.

Factors that may have militated against an early settlement in British Columbia include the wage concessions granted in the northwest states and in eastern Canada and the new federal budget resulting in depreciation of the Canadian dollar. The latter has been seized upon by the unions as justification for higher wages because of the potential revenue increases from exports. The British Columbia mills are negotiating this year on an industry-wide basis rather than unilaterally, which was the previous practice. They have offered an industry-wide health and welfare program, an additional paid holiday and upward adjustments in pay for some mechanics, but no general wage increase. ■

## . . . INDUSTRY GROWTH

# Two blade coaters for K-C, 3 more coming

KIMBERLY, WIS. — Kimberly-Clark Corp. has converted its second paper machine here to blade coating for printing papers.

The conversion doubles the company's capacity to produce machine-coated letterpress sheet grades and publication rolls. The additional capacity will enable K-C to produce three more letterpress grades by the blade-coating process. Previously these grades had been roll coated.

Conversion of the Kimberly machine from conventional roll coating to on-machine blade coating now gives the company three producing units for blade-coated paper. Two are at Kimberly and one is at Niagara Falls, N.Y. A fourth unit at Niagara, Wis., will be converted to blade coating this fall, and a fifth unit will be added in 1962, when a new high speed machine now under construction at Niagara goes into production.

Operation of this fifth blade coater will mean that almost two-thirds of Kimberly-Clark's coated printing papers will be produced by this method by the beginning of 1962.

### K-C to spend $70 million by '63

NEENAH—Proceeds of a $30 million, 25-year debenture, which were recently oversubscribed in public offering, will be used by Kimberly-Clark Corp. for expansion. Company plans call for spending $70 million by 1963. Biggest project disclosed so far is a pulp and paper mill in California, plans for which resulted from merger with the Ralph Kirby lumber interests.

### MB&PR spending $21 million

VANCOUVER—Having spent more than $160 million in the past five years, MacMillan, Bloedel and Powell River, Ltd. is investing another $21 million this year. Largest item will be $7 million for construction of its $24 million newsprint installation at Alberni scheduled for completion in 1963. Another $1.5 million is slated to modernize operations at Alberni.

Powell River will spend $5 million for pulping process improvements, completion of pulp cleaners for all newsprint machines, tension controls on all winders, automatic roll-handling and a new hydraulic barker. By year end, all company newsprint machines will be equipped with Bauer Centri-Cleaners.

Another important addition is a new self-loading and self-dumping log barge, measuring 340 ft. long, 64 ft. wide and 19½ ft. deep, when fully loaded. The barge can carry 1,500,000 ft. of log scale.

### G-P Expands Corrugating

PORTLAND, ORE.—Georgia-Pacific Paper Corp. is expanding its corrugated container group by acquisition and by building another West Coast container plant.

The Monticello, Iowa, plant of White Containers, Inc., has been acquired by G-P through exchange of an undisclosed amount of stock.

The White facilities, which will be operated under the G-P name, have the capacity to produce 10 million sq. ft. of corrugating a month.

Another corrugating container plant, similar to G-P's new one at Olympia, Wash., was announced for northern California at a site yet to be selected. Ultimate capacity is projected to be 45 million sq. ft. a month operating on a 3-shift basis.

### Book Sales Continue Up

NEW YORK—Sales of books last year increased for the eighth consecutive year, says American Book Publishers Council, Inc. Dollar net sales of more than 200 publishing houses were up 11.9% over 1959, were 92% higher than 1952. Total sales of books amounted to about 605,921,000 copies in 1959, climbed to 674,733,000 copies in 1960. Surprisingly, sales of paperboard books (newsstand distributed type), although still the biggest volume category, were down 2.1% from 286,116,000 books in 1959 to 280,047,000 in 1960.

### 4,000 Cars for Newsprint

MONTREAL—Importance of newsprint transportation is being exploited by the Canadian Pacific Railway. It will have 4,000 box cars with a bright red shield bearing the inscription "Newsprint Service Only."

### New Woodroom for St. Croix

WOODLAND, MAINE—St. Croix Paper Co. is spending $2 million for new woodyard-woodhandling facilities. Operations are scheduled to begin in April. H. A. Simons, Ltd. is handling the engineering, working with St. Croix's Project Director Everett Blackwell. ■

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. . . . . LEGISLATION

# Washington enlarges anti-pollution role

A WARY PULP AND PAPER industry is waiting for the federal government's first move in enforcing its newly amended tougher anti-pollution law.

Now that Washington has passed sweeping amendments that greatly enlarge its authority in pollution matters, the industry's attention has shifted to how the law will be enforced, according to an observer.

The amendments, the work of several Congressional hands, were approved recently by the House and Senate, and then were signed by President Kennedy, as had been anticipated (PULP & PAPER, July 10, 1961, p. 5).

**Causing most concern** is a provision that extends federal jurisdiction over pollution to "navigable waters," as well as those that are interstate. Under this clause, it is believed, the Dept. of Health, Education and Welfare could take action to abate pollution even if it is purely intrastate in nature.

Pulp and paper—and other industries—feel that the states and lesser governmental subdivisions, have sufficient power to curb stream pollution within their jurisdiction.

Additionally, pulp and paper contends its anti-pollution programs, instituted under existing state laws and the former federal laws, have been notably effective. (See special report, page 47.)

There is a possibility, it is felt, that officials in Washington, who might be uninformed about the measures being taken on a state level, could hurt—even wreck—programs now under way.

To implement its increased power, the federal government has also substantially boosted the amounts of money that it can appropriate to state and local governments for their pollution-treatment projects. For the current fiscal year, which ends June 30, 1962, $80 million has been allocated; for fiscal 1963, $90 million; and for fiscal years 1964, 1965, 1966 and 1967, $100 million. ■

. . . RESEARCH & TECHNOLOGY

# Orient research to customer's needs

WHITEFACE, N.Y.—Loaded by competition and plagued by unused capacity, the paper industry is becoming more and more research oriented. Two recent events, one here at the annual meeting of Empire Section of TAPPI and the other at the $4.5 million research center of The Mead Corp. in Chillicothe, Ohio, show just how seriously the industry is taking to research.

"The measure of a company is recorded not only in its profit and loss figures, but also in its research program. Research . . . is a fundamental source of company strength," says George H. Pringle, Mead's executive vice president.

Here at Whiteface, Paul Thoma, technical director of Time Inc.'s Springdale laboratories, made a few statements, which many TAPPI members are still studying. He told the group: "The present system of just producing more and more tons must give way to developing a product that the publishers (and the customers) need to stay competitive . . . The most common concept of paper machine research is the development of wider, faster and more efficient machines, thus increasing capacity by leaps and bounds . . ."

Mr. Thoma quoted Gordon Dalsemer, packaging consultant for International Paper Co.: "In spite of their growth, plastics have been handicapped in relation to paper packaging because of high cost in raw materials and in fabricating. Why were they able to make the progress they made even though their costs were higher? Because plastics can be used to tailor a package to the specific requirements of the products which it is enclosing."

Commented Mr. Thoma, " The success with which the plastics industry has met the requirements of its customers, however, does not mean that the paper industry cannot do the same thing. The plastics industry had to develop new and better products to compete.

**"It is now up to paper** to regain a better competitive position by doing the same thing." Again quoting Mr. Dalsemer: "To me it is no longer a question as to whether the industry can afford to spend sizable sums of money on research. It is now an open and shut case of sink or swim."

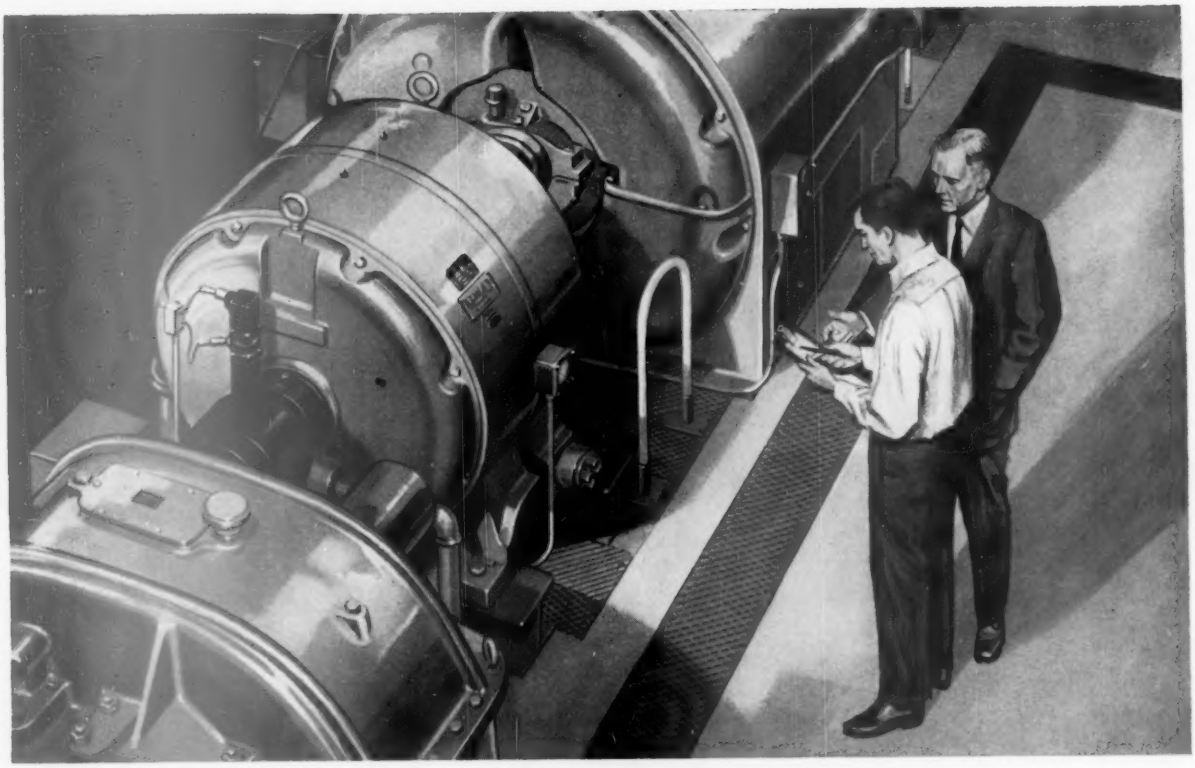
Mr. Thoma also quoted some remarks of H. E. Whittaker, chairman of the board, The Mead Corp., and president of the American Paper & Pulp Assn. He said: "We must learn more about our customers, our markets and the changes that are taking place. It has been said that our customers are more important than our products. When you think it over, it is true. We can change our products to suit the needs of the customer and we do change them all the time. But how many of us act as though the product is more important than the customer . . . We forget that our real problem is to study our customer and his changing needs . . ."

Mr. Thoma, looking at the printing paper field, noted: "Twenty years ago supercalendered uncoated paper in rolls was a major factor in the consumer publication business. In mid-May of this year, the last big weekly consumer magazine switched from this grade to a preponderance of machine coated paper.

**A thriving paper grade** twenty-five years ago, was brush-coated No. 2 enamel in sheets. The same revolution that developed machine coated paper in rolls has caused No. 2 brush-coated enamel to all but disappear from the market. Ten years ago the bulk of machine-coated paper used in publications was in the 47 to 55 lb. basis weight range. Today, the bulk of this market is using paper which averages close to 40 lb. in basis weight.

"Five years ago on-machine roll coated paper was the standard in the publishing industry. Today, blade-coated, either single or double coated with roll and blade, is taking over more and more of the market.

"These changes did not occur just because someone came up with a new idea. There was an economic need on the part of the end users of paper that forced these developments into being, despite much pessimistic reaction on the part of certain diehards in the paper industry."



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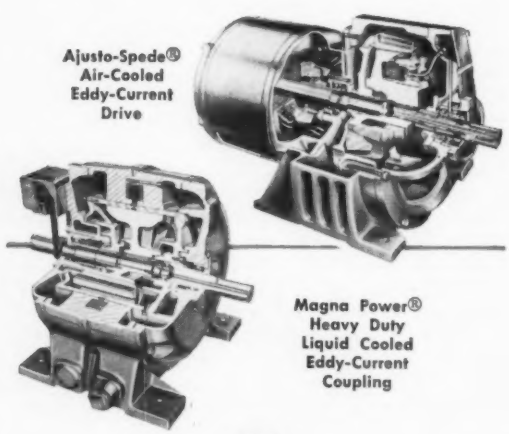

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**A significant development** this year was the opening of Mead's new research center. It has been called by the vice president of research and development of a competitive company, "the paper industry's goal to shoot for."

At a special dedication for the press, Mr. Pringle said, "Much has been said about the industry's excess capacity, reduced profit margins, stiff competition and unrealistic pricing practices. But we at Mead are not dismayed. The Sixties may be 'fabulous' as we've heard, but we at Mead see this decade as the 'competitive Sixties.' "

At Chillicothe, Mead's research scientists are making papers of glass, ceramic, nylon, acrylic, Teflon, aluminum, steel, copper, zinc, silver, lead and polystyrene plastic. Mead is making exotic papers, some of which cost as much as $420 a lb., others $1 a sq. ft.

Mr. Pringle disclosed that "Mead and M. Lowenstein & Sons, Inc. are making a joint investigation of mutual opportunities in the textile industry." Goal is to achieve "new commercially practical methods for the manufacture of textile fabrics and products using techniques used in the manufacture of paper."

**Research facilities of both firms** are being used to find additional fiber, finishing, and converting technologies, applicable to textiles. "This new association offers far reaching opportunities for Lowenstein to develop new fabrics and products in the apparel, home furnishing, domestics and industrial fields" according to Mr. Pringle, "and for Mead to expand its markets into an industry which uses more than 6.7 billion pounds of fiber annually."

Lowenstein is the largest producer of printed cotton fabrics in the U.S. It has 16 mills, two finishing plants, and chemical and research facilities. ■

# Interface–detection method is simple

FOLEY, FLA. – Buckeye Cellulose Corp.'s woodpulp mill here has adapted the temperature-differential method of detecting the interface in high density bleaching stages to a situation in which little or no temperature differential exists under normal operating conditions.

Moreover, the new method, which Buckeye is using on three bleach stages, has been inexpensive to install and maintain and has been extremely satisfactory in performance, the mill says.

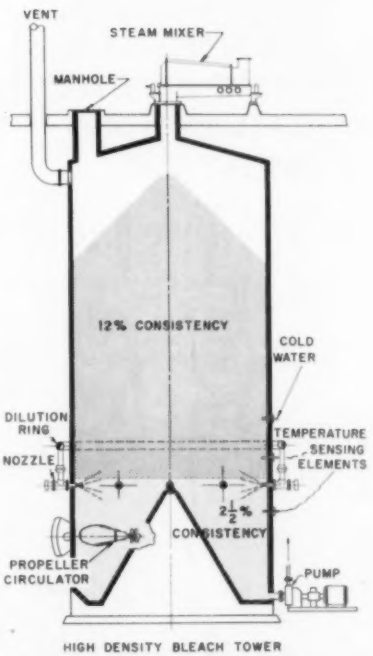
Buckeye has been using the standard differential method here since the mill began operations in 1954. A new detection method, however, had to be found when a second mill and a parallel bleaching system were installed as part of the plant expansion program.

**To get best operating conditions** in the new system and provide the most economical use of steam, hot water from waste heat was made available for washing after passing through several hot, high density towers. As a result, the temperature of the dilution, or mining, water approached that of the pulp in the tower, preventing satisfactory use of the standard interface detection method.

After trials, the mill found that the temperature-differential method could be made to work by injecting a small stream of cool water just above the top thermometer. Ten to fifteen gpm of cool water was found to cool a small portion of high density, downward flowing pulp, registering a cooler temperature on the upper thermometer, while the lower one remained hot from the well agitated low-consistency slurry below the interface. As the interface drops, the cooling reaches the lower thermometer. As it rises, the dilution water heats the upper thermometer.

While the exact mechanism of the cooling is not known (injected water may cool the high density pulp, the tower wall or a combination of both), the results have been consistently satisfactory, Buckeye explains.

Buckeye engineers believe the method would be practical for interface-detection in cool high density pulp storage systems—with injection of hot water rather than cool water above the thermometers. ■




ADAPTED INTERFACE-DETECTION method that is used by Buckeye.

# Continuous pulping probed at Howard Smith

CORNWALL, ONT.—Many questions about continuous digesting that are still unanswered are now under intensive study here by the Howard Smith Research Dept. together with Bauer Bros.

A continuous digester will produce about 2 tpd of experimental pulp at conventional yield and a greater amount of high yield semi-chemical pulp. Research Director George H. Tomlinson II expects the installation to provide a sound means of evaluating continuous digesting and its adaptability to various cooking methods. Practically all known methods, including Magnefite, kraft, neutral sulfite and high yield bisulfite can be used with the continuous digesting equipment.

**Chips will be released** from a storage bin into a pre-steamer by a feeder regulator. The pre-steamer drives the air from the chips and permits greater penetration of cooking liquor. From the pre-steamer, the

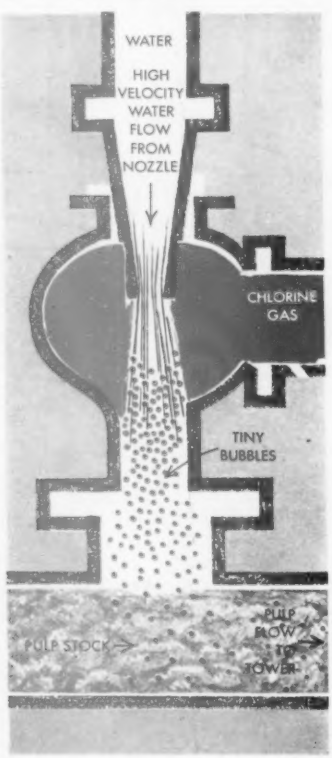
John A. Hanson, Technical Director

**Badger Paper Mills reports:**

# 27 years of trouble-free pulp chlorination

In 1934 Badger Paper Mills, Peshtigo, Wisconsin, cooperated in the first installation of the Pennsalt Dispersed Chlorine System. Dependable performance over the years has proved to Badger that here is the sure way to obtain uniform application of minute chlorine bubbles throughout the pulp slurry. It has meant improved pulp quality, low maintenance and production line efficiency.

## PENNSALT DISPERSED CHLORINE SYSTEM




A high pressure water jet, issuing from a nozzle, makes impact with the flow of chlorine gas to disperse it into countless tiny bubbles which readily go into solution as they enter the pulp flow.

**Partial list of other mills using the Pennsalt Dispersed Chlorine System:**

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Crown Zellerbach Corp., West Linn, Ore.; Camas, Wash.
Weyerhaeuser Company, Longview, Everett, and Cosmopolis, Wash.
Puget Sound Pulp & Timber, Bellingham, Wash.
MacMillan, Bloedel & Powell River Co., Harmac and Port Alberni, B. C.
Bergstrom Paper Co., Neenah, Wis.
North Western Power & Pulp, Ltd., Hinton, Alberta
Scott Paper Co., Everett, Wash.; Mobile, Ala.
Brunswick Pulp & Paper Co., Brunswick, Ga.
Buckeye Cellulose Corp., Foley, Fla.
Marathon Corp. of Canada, Ltd., Marathon, Ont.
Several European mills are also using the Pennsalt Dispersed Chlorine System.

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chips go into the first of the two digester tubes, inclined at a 45° angle. A conveyor takes the chips through the liquor filled tube, down one side and up the other—with the round trip requiring about 30 minutes.

Still filled with liquor, the chips are then discharged from the first tube and carried to a second where the same process is repeated. From the second tube they are released to a blow tank, then to a refiner. ■

. . . . . EDUCATION

# College upgrades paper marketing course

NEW YORK—A course on the "Marketing and Distribution of Paper and Paper Products" will be extended to both the day and evening programs of the New York City Community College of Applied Arts and Sciences, in Brooklyn, commencing with this September term.

First offered on a trial basis in the college's evening program three years ago, the paper distribution course proved to be so popular that college officials decided to add it to the daytime curriculum for the 1961-62 season.

George Austin, director of general products sales and services, Lily-Tulip Cup Corp., and Arnold Posner, paper wholesaler, were founders of the two-year course, designed to prepare graduates for positions with manufacturers and wholesalers in the paper and paper products industry. The distribution course covers six areas of specialization—two each on marketing and distribution and on packaging and materials handling—in addition to general educational courses required by the college. Each of the courses carries two academic credits.

Leaders of the paper industry are serving on the faculty, as well as members of the college staff.

It is the hope of the founders that the courses will be adopted by other colleges and universities. ■

**GEORGE AUSTIN, Lily-Tulip Cup official, is founder of new paper college course. In recognition, he was named to advisory committee of New York Community College.**

. . . INTERNATIONAL

# Swedish cooperative buys mills,

## Svenska Cellulosa moves into Spain; soda pulp at Billeruds

By DR. OLLE ANDERSSON, PULP & PAPER's editor in Sweden

STOCKHOLM — Two large pulp and paper mills have been purchased by Skogsägarnas Cellulosa AB, a cooperative owned by many small forest owners of northern Sweden. These are Sanvikens kraft mill at Kramfors, owned by AB Graningeverken and the Hörnefors sulfite and fine paper mills near Umeå, owned by Mo & Domsjö. Value of the mills is estimated at $30 million. Output of Sanviken is 44,000 short tons, which can easily be increased to 55,000. Hörnefors produces 77,000 tons of bleached sulfite pulp and 22,000 tons of fine paper.

The forest owners cooperative controls a large part of the raw material in this area. They decided to purchase existing mills rather than build new ones. The latter alternative would have caused difficulties in the supply of mills which have been purchased, since these take part of their raw material from the forest owners.

A sales company will be formed in collaboration with the forest owners in southern Sweden, which will include output from the Mönsterås and Mörrum mills, owned by the large southern group. Total sales volume is about 500,000 tons.

A third mill will probably be purchased, but as yet there are no definite plans, says Dr. Gunnar Hedlund, head of the forest owners company. These two mills consume both pine and spruce; the Hörnefors mill can also handle birch wood and thereby all species of any importance in this area of the country are used.

**Swedish Cellulose Co.** has purchased 50% of the stock of the Spanish company Papelera Navarra SA for $2,600,000. The mill, under erection in the northern province of Navarra, is scheduled for an output of 26,400 short tons of corrugating medium and liner. It also includes a corrugated box mill. The mill is scheduled for operation about the first of the year. At present, the mill will use only domestic raw material, later will import some from Sweden. Swedish technical personnel will assist the start up.

**A Swedish-Finnish pulp sales** firm has been formed, AB Drymech, Ltd., established by the Swedish and Finnish manufacturers of dry mechanical pulp. Stock is valued at $20,000. Intention is to coordinate sales outside the two countries of this special kind of pulp, which is quite sensitive to market situation.

This pulp is only a minor segment of the Swedish pulp output, amounts to about 99,000 tons from Sweden and about half this amount from Finland, but the markets are quite remote.

**Soda pulp mill is planned** by Sweden's Billeruds AB, who has placed an order for a complete soda plant with liquor recovery for their Slottsbron mill. Equipment comprises a 56 ft. high, 13 ft. dia. digester, three filters and high density stock pumps. ■

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# UK bid to join EEC stirs anxiety in Canada

## Pulp producers concerned Scandinavia would get competitive edge

VANCOUVER, B.C.—The United Kingdom's bid to join the European Common Market is being greeted by Canadian pulp and paper exporters with resignation and a hope that the long-term results will be beneficial.

However, pulp manufacturers interested in exports make no attempt to disguise their anxiety that British membership in EEC would have serious consequences if it results in a steep tariff.

Pulp manufacturers believe Scandinavian pulp will gain important advantages in the European market, overcoming competition from North America, if protected by high tariffs.

**Canadians are banking** on the hope that, so far as sales of pulp to the United Kingdom are concerned, there will be no tariff restrictions—that at least a semblance of the historical Commonwealth preference will continue. They are counting on Britain to use her influence to protect traditional trade channels among Commonwealth countries, even though the ties among those countries have been weakened by recent events.

It is admitted that the Scandinavian countries will exert a powerful influence within the European area and thus may be able to counter any recommendations from Britain.

There appears to be little doubt that there will be a substantial tariff within the EEC on paper and linerboard. But, it is expected, pulp will not be affected by tariff changes, since paper mills ordinarily do not want to upset their established channels for pulp.

**"Britain's entry into ECC** is inevitable," the pulp sales manager of one of Canada's largest companies told PULP & PAPER. "It's a question of economic survival, and while it may seem a little rough on the Commonwealth, Britain's got to look out for her own interests first. For the short term, we may face disruption and perhaps loss of business, but it's a lot better for us to do business with a country that's economically sound than one that's in financial trouble.

"Continued prosperity of Western Europe, including the United Kingdom, will mean much to North America in the long run. The more Europe prospers the greater will be the demand for pulp and other wood products—a demand that could quickly overrun all European sources of supply. It's too early to make a full assessment of what may happen, but the situation certainly offers opportunity as well as trouble." ■

# Kruger building tissue mill in Colombia

MONTREAL — The Kruger Organization, Ltd., Montreal-based management company that controls 10 companies operating in the pulp, paper and aluminum fields on three continents, has announced establishment of a $5,000,000 papermaking facility in South America.

Papeles Nacionales, S.A., newest of the Kruger enterprises, is located in Cartago, Colombia. The 160,000-sq.-ft. plant, now under construction, will be completed late this year. It is expected to be the largest mill of its kind in Colombia.

**Initial output of the mill** will be about 45 tons a day of wrapping and sanitary papers, which will be made into products such as toilet paper, towelling, napkins and lightweight wraps. The finished products will be sold exclusively in the Colombian market. Pulp will be imported from Canada.

At the outset the mill will have one paper machine, plus pulp preparation, finishing and converting equipment. Head office is at Pereira (Caldas).

The Colombian mill is the newest enterprise of a company formed only two years ago to centralize control of widespread business interests. ■



# Crown Z seeks rehearing of FTC case

SAN FRANCISCO—Crown Zellerbach Corp. will ask for a new hearing of the Circuit Court of Appeals ruling that affirmed a Federal Trade Commission divestiture order. The order concerns Crown Z's acquisition in 1953 of assets of St. Helens Pulp & Paper Co., which is now operated as the St. Helens (Ore.) division.

The court held that the purchase lessened competition in certain lines of coarse papers sold in West Coast markets. The FTC order has been in litigation since 1957. The company is convinced the legality of the purchase will yet be established.

### Stanpak Buys Tissue Firm

NEW YORK—Standard Packaging Corp. has acquired the business of the Golden Fleece Tissue Mills, Inc. and its wholly owned subsidiary, Battenville Paper Mills, Inc. This move puts Stanpak in the facial tissue field, which, says Chairman R. Carl Chandler, now permits the company to offer a complete line of paper service to the housewife. Golden Fleece has an expansion program under way designed to increase sales and earnings in the next 12 months.

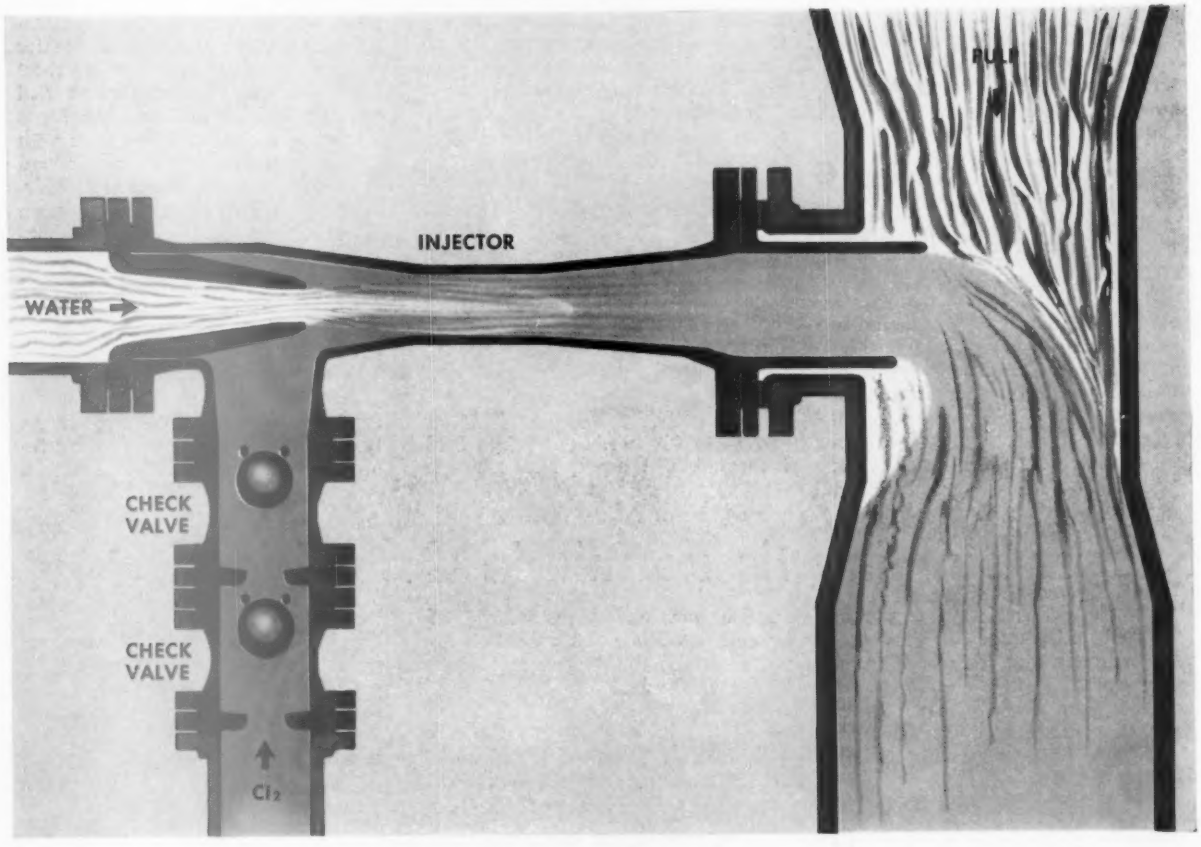
Harry Preston, founder of Golden Fleece, and Stanley Preston and Sherman Wiesen, who together comprise the present executive-management group, will continue in active operation of the business as a division of Standard Packaging and will become part of the consumer products group of Stanpak.

### Borden Acquires Columbus

NEW YORK—The Borden Co. recently has acquired the business of Columbus Coated Fabrics Corp., Columbus, Ohio. Columbus makes oil, nitrocellulose, polyvinyl chloride and acrylic-coated fabrics. ■

# ONE STEP TO BETTER PULP CHLORINATION

## A TOUGH NEW CHLORINE INJECTOR




- **Engineered for chlorine**
- **Tough, corrosion resistant**
- **Effective chlorine atomization**
- **Dependable check valve**

Here is a rugged new injector, engineered specifically for safe, efficient chlorine injection into pulp stock.

Two types of construction are available: (1) steel body protected against corrosion and with a PVC insert; (2) a unit fabricated entirely of Hetron® polyester resin reinforced with glass fiber, tough materials, free from corrosion and fire-retardant.

The long, smooth venturi permits maximum use of water energy to atomize the chlorine for rapid, uniform solution in pulp slurries.

Dependable double check valves protect against a water backup into the chlorine system.

Hooker technical service engineers will be happy to help you design and install a complete system. They can also advise you on the other important steps of Hooker pipeline mixing, redox control, and retention time control.

Write for a descriptive bulletin on the new Hooker chlorine injector.

**HOOKER CHEMICAL CORPORATION**
1908 Forty-seventh Street, Niagara Falls, N. Y.

*Sales Offices:* Buffalo Chicago Detroit Los Angeles New York Niagara Falls Philadelphia Tacoma Worcester, Mass.
*In Canada:* Hooker Chemicals Limited, North Vancouver, B. C.

HOOKER CHEMICALS PLASTICS

## . . . . . MERGERS

### Allied Acquires Gavrin

CHICAGO—Extending its acquisitions of business forms corporations, which it announced it was going to do aggressively last year, Allied Paper Corp. has acquired the Arthur J. Gavrin Press, Inc. of New Rochelle, N.Y. Gavrin has a sales volume of $5 million, also has plants in Denison, Texas and Danville, Ky.

The move puts Allied among the top four of business forms producers in the U.S. The business forms industry is now operating at a level of $500 million a year, with a 10% annual growth rate expected to continue for some time. Allied's stake in this area is estimated at $23 million.

### Another Plastics firm for PCA

EVANSTON, ILL. — Packaging Corp. has acquired its fourth plastics operation since it entered the foam plastics field last December. The latest: Expandable Plastics Co. of Akron, O. It will enable PCA to provide foam plastics inner packaging service on a national basis.

## . . . PULPWOOD MANAGEMENT

# Tax boost forces untimely timber cut

LONGVIEW, WASH.—Increased property taxes have made it economically impossible to practice sustained yield forest management in Clark County, Wash., says Weyerhaeuser Co. The company's forest management plan had called for harvesting timber here, over an extensive period as a unit of its St. Helens Tree Farm. Instead, all the company's old-growth trees will be harvested before the end of 1962.

"The change in plans is a direct result of increased property taxes," explains W. H. Robertson, manager of Weyerhaeuser's Longview branch. "Under ordinary circumstances, forest management considerations rather than taxes govern decisions on scheduling timber for harvest. In this instance an unusual tax situation dictates that the timber be removed. The level of taxation under the new Clark County valuations is four times higher than in other counties. At this rate we must remove our Clark County timber on an accelerated rate. We have developed, protected and paid taxes on these lands since 1908."

The timber will be used at Longview to make lumber, plywood, pulp and paperboard.

**Timber appraisal principles** that are recommended by the state tax commission have been abandoned by the county assessor, says Mr. Robertson. As a result, taxes on company lands were boosted 400% more than they would have been under normal tax commission procedures.

Regarding policy, Mr. Robertson stresses, "Weyerhaeuser has no objection to tax increases resulting from more accurate timber inventories and recommended re-appraisal procedures. We find it impossible, however, to hold timber and invest in forest-management activities in a situation where there is a small possibility of realizing a return on investment."

Under Weyerhaeuser's sustained-yield management program, the amount of timber to be harvested annually from each tree farm is limited to balance growth to insure a perpetual supply of timber for stable, continuous mill operations. Since an annual allowable cut has been established for the entire tree farm the accelerated logging activity in Clark County will necessarily reduce the amount of timber harvested in neighboring counties.

Comments one timberland owner, "This is a good example of what can happen when taxes get out of control. These implications are serious and could jeopardize long-range private ownership of timber." ■

# Barges will haul Queen Charlotte logs

VANCOUVER, B.C.—First of two side-tipping, self-baling log barges, designed specifically for the run between Queen Charlotte Islands and mainland British Columbia processing plants, was launched recently by Allied Builders, Ltd., here for Rayonier Canada, Ltd.

The barges, which will be towed, will expedite delivery of logs and thereby reduce their cost, as compared with the traditional practice of building Davis rafts and having them towed across the open water between islands and mainland.

Rayonier Canada has a tree farm license on the Queen Charlottes, and it is planned to carry about 50,000,000 board feet of logs annually with the new barges. They will also be used to some extent to transport logs from the west coast of Vancouver Island.

Cost of each barge will be about $900,000. Each has a capacity of 1,400,000 board feet of logs. Over-all length is 315 ft. and width 62 ft. ■

# USFS and Mead study hardwood management

DAYTON, OHIO—The Mead Corp. and the U.S. Forest Service will jointly conduct research in management of hardwood timber for production of pulpwood. The project will be conducted on the 700-acre Mead experimental forest in Southwestern Ohio.

Specific areas of study will be how and when to harvest pulpwood trees to assure good forest stand for the future, what steps can be taken to increase the growth rate of pulpwood as well as sawtimber trees and what is the optimum age for harvesting a pulpwood tree.

Ivan H. Sander, a professional forester experienced in silvicultural research, is being transferred by the Forest Service to head the project. Based at Athens, O., where the USFS has a field research office, he will receive assistance from Mead's land management foresters George Walters and Robert Nelson. ■

The Westinghouse man with the motors brings you—

# New Class B Insulation to give you 15% more horsepower on totally-enclosed Life-Line motors

Now Class "B" Insulation replaces Class "A" *as standard* on totally-enclosed 1-250 hp Life-Line a-c motors giving you these advantages:

**Added capacity . . .** Operation at 15% over nameplate rating without reduction in motor life.

**Longer life . . .** 80% to 100% longer life at rated loads than motors with Class "A" Insulation.

This newly designed motor is engineered to give top performance in a wide range of applications. On-the-line experience in the steel industry, where maximum reliability is essential, has proved its higher output, longer life and lower maintenance under the toughest conditions.

**For the ultimate in protection** specify Guardistor* on all Westinghouse motors. This exclusive built-in static motor protection allows the use of maximum horsepower over long periods with no danger of motor burnout.† For additional information ask for booklet B-7876-A.

Your Westinghouse sales engineer can supply you with complete details on these money-saving motors. Call him for full information on how they can fit into your production scheme. Westinghouse Electric Corporation, P.O. Box 868, Pittsburgh 30, Pennsylvania.

*You can be sure . . . if it's Westinghouse.*

*Trademark

**Westinghouse**

†Warranty: Westinghouse GUARDISTOR MOTORS on frames 182-445 inclusive are guaranteed for one year against burnouts due to overheating resulting from: overload, locked rotor, blocked ventilation, bearing seizure, single phasing, unusual duty cycle, high ambient, or voltage unbalance, providing the Guardistor elements are connected in a control circuit so that the motor is removed from the power source in the event of over-temperature.

J-22170

**Another Mount Vernon Dryer Felt Success Story . . .**

Mount Vernon was contacted by a leading producer of insulating papers to eliminate a burning out condition on dryer felts running on top machine positions. After analyzing these machine conditions, Mount Vernon's WOODBERRY 887 was recommended. Results showed that WOODBERRY 887, with its partial asbestos face, completely conquered the high temperatures, staying on the job for 121 days. Drying efficiency improved to the point where machine speeds could be increased. WOODBERRY 887 once again proved its versatility for most every paper making need!

# STARS IN MANY ROLES

## WOODBERRY 887—Asbestos Reinforced Dryer Felt

Whatever the role, WOODBERRY 887 is sure to turn out an exceptional performance. Engineered to fulfill requirements for a large variety of paper-making applications, this is the dryer felt that offers maximum drying and durability. WOODBERRY 887 is a medium-weight cotton dryer felt with asbestos yarns in the face, the asbestos reinforcement providing greater heat resistance than can possibly be obtained with all-cotton felts. For longer life, for greater heat resistance, for finer finished paper in countless applications . . . from the making of Kraft to fine book papers . . . WOODBERRY 887 is right for the role. Available pre-stretched and pre-shrunk, with or without clipper seams.

**MOUNT VERNON DRYER FELT FAMILY**—WOODBERRY 887 is just one of Mount Vernon's full "family" of scientifically designed dryer felts. There's an individual felt for virtually every paper machine position and every paper-making need.

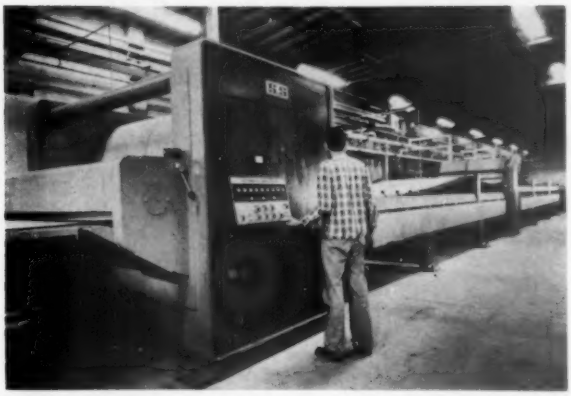
UNIFORMITY Makes The Big Difference

Mount Vernon Mills, inc.

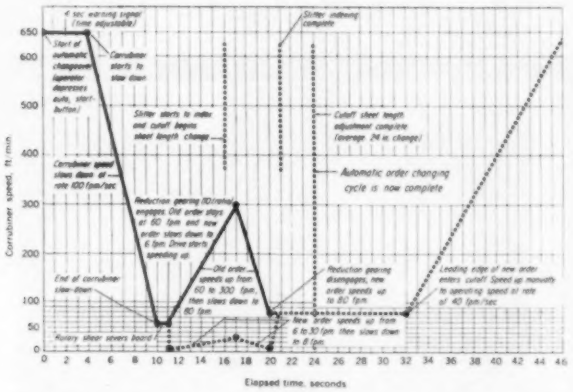
A LEADER IN INDUSTRIAL TEXTILES

**DRYER FELT DIVISION,** 201 East Baltimore Street, Baltimore 2, Maryland • Telephone: SA 7-5845

# Corrugator has automatic sequential changing



CONTROL PANEL for automatic sequential order changing system is at main belt pull roll stand (left). Step-controlled changeover sequence is recorded by top row of square buttons in dark area of panel, which light up progressively as each step is completed. Three buttons in lower row light up indicating set-up of slitter and cut-off upper and lower knife is completed.


Corrubiner speed, ft./min
650
600
500
400
300
200
100
50
0
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46
Elapsed time, seconds
4 sec. warning signal (time adjustable)
Start of automatic changeover (operator depresses auto. start button)
Corrubiner starts to slow down
Slitter indexing complete
Slitter starts to index and cutoff begins sheet length change
Cutoff sheet length adjustment complete (average 24 in. change)
Corrubiner speed slows down at rate 100 fpm/sec
Automatic order changing cycle is now complete
Reduction gearing (10 to 1) engages. Old order stays at 60 fpm and new order slows down to 6 fpm. Drive starts speeding up.
End of corrubiner slow-down
Old order speeds up from 60 to 300 fpm then slows down to 60 fpm
Reduction gearing disengages, new order speeds up to 850 fpm
Leading edge of new order enters cutoff. Speed up manually to operating speed at rate of 40 fpm/sec
Rotary shear severs board
New order speeds up from 6 to 30 fpm then slows down to 6 fpm

TIME CYCLE (right) for changing system requires 32 seconds for complete changeover. Broken line shows incoming order; and how clutch and gearbox control its speed to the runout.

NEW YORK—Rapid changeover from order to order in final operation of scoring, slitting and cutting without shutting down machine, and with only momentary slowdown of high speed production flow are features of a new sequential automatic order-changing system.

The sequential automatic order-changing is a step-controlled, rather than a time-controlled, sequencing that automatically takes full advantage of optimum time for each stage of order changeover. As each step is completed, a new one is automatically started. There is no built-in time delay to slow the changeover cycle; the time-controlled switching requires setting the machine for maximum time required for any operation. The completion of each step triggers the next one in a chain-reaction sequence that not only eliminates waiting time, but also assures that no operation will take place until the preceding step is completed. The entire order change cycle takes about 32 seconds.

The system is designed as an integral part of the new S&S 700 Corrubiner. Three important units of the 325-ft. long unit are involved in the automatic changeover cycle: The double backer, which contains the board drying and cooling sections; the triplex slitter, which slits and scores the continuous moving web of corrugated board; the rotary cut-off, which cuts slit and scored board into sheets.

**The operator pre-selects** the direction of the index for the slitter and the length of sheet on the cut-off for the incoming order. By counter or manually, the control warns when the end of the run is near; the operator presses the start button at the conclusion of the run to start the automatic order changeover. At the reduced changeover speed, the paper is severed and the runout accelerated while incoming paper is slowed. Then the slitter is indexed, cut-off length adjusted and the speed brought up to run speed of the new order.

If it is necessary to stop the sequence at any step, an emergency button stops the double-backer dc motor and the automatic changeover controls. Pre-set information is then cancelled while the sequence may be manually continued.

***Supplier:*** **S&S Corrugated Paper Machinery Co., Inc., Brooklyn, N. Y.**

## Pre-Formed Band
### . . . for job-site fabrication

*Applications:* For angle insulation on jacketed piping.
*Advantages:* Permits job-site fabrication of aluminum-covered elbows, turns, sweeps and bends from straight lengths. Developed by Johns-Manville for use with its Metal-On system, the system uses a pre-formed band called the Miter-Seal.

Use of this band is said to eliminate many operations for insulating fittings and bends as well as stocking and storage problems for pre-formed materials. Fabrication of insulation for a fitting requires only a few steps, using a straight length of the same Metal-On being used for straight runs, an ordinary saw, a Miter-Seal band and a J-M banding wrench. Instructions provide precise measurements and angle cuts to be made eliminating guess work and minimizing measuring operations.

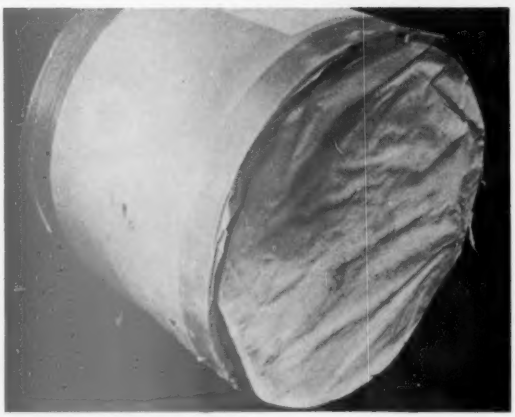
*Specifications:* Bands are available for use with pipe sizes ranging from ¾ in. to 24 in. J-M Metal-On is a ½ pre-jacketed insulation system that consists of Thermobestos, an isolation barrier, and a weatherproof aluminum covering; all prefabricated for application in one step, by simply snapping the 3-ft. sections over the pipe and securing with an aluminum snap-strap, provided.

***Supplier:*** **Johns-Manville, Insulation Div., 22 E. 40 St., New York 16, N.Y.**

**continued on p. 76**

# CONSISTENT CRIMPING QUALITY AT HIGH PRODUCTION SPEEDS

*Here's the difference . . .*



**ORDINARY ROLL WRAPS**

—especially heavy or multiple wraps—invariably have vulnerable dog-eared edges that contribute to poor appearance and high incidence of roll-handling damage.

**LAMB CRIMPED ROLLS**

greatly improve appearance and offer maximum resistance to handling hazards. The crimp is always uniform, tight—even in heavy and multiple wraps.

## *The* LAMB AUTOMATIC ROLL CRIMPER *mechanically forms a superior crimp in heavy and multiple roll wraps— both ends at once in 20 seconds!*

PRODUCTION

PROVED

The Lamb Automatic Roll Crimper is the first production-proved crimper to solve the "dog-ear" problem in roll wrapping. It makes a precise, uniform, tight-edged crimp to both wrapper ends simultaneously.

It maintains consistent package quality at high production rates in heavy and multiple thickness wraps.

It automatically accepts and crimps intermixed rolls of varying length and diameter. No need to group rolls. Saves needed floor space. Adapts easily to changing requirements and conditions. Package appearance is 100% improved.

*Write Lamb-Grays Harbor Company for Specifications*

LAMB

*Manufacturers of Roll Finishing Equipment and Complete Systems.*

**Lamb-Grays Harbor Co., Inc.**

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Phone: GEneral 8-1000

# IP's Southern Kraft makes top changes

MOBILE, ALA.—Following the retirement of Erling Riis, Norwegian-born pioneer in the Southern pulp and paper industry, Arthur L. Ross, his associate for 35 years, has been promoted to general manager, Southern Kraft Division, International Paper Co. C. L. Crain, who also has been with IP for more than 35 years, moves into the assistant general manager's post. Both Mr. Ross and Mr. Crain are vice presidents of the company.

John A. Lyden steps up as special assistant to Mr. Crain. Arthur F. Perkins becomes manager of manufacturing and Arthur P. Foster is now chief engineer in charge of engineering and construction.

Mr. Riis continues with the company as vice president and a director, assumes overall responsibility for the Southern Kraft Division's manufacture of by-products and its development of new by-products based on chemistry of pulp and papermaking.

ROSS

CRAIN

LYDEN

RIIS

Coming from Norway in 1911, he worked as a sheepherder in Montana. But soon he landed a job at Thilmany Pulp & Paper Co., Kaukauna, Wis., as pulp mill foreman. He was chief engineer at the old Bogalusa, La., mill from 1915 to 1920. He joined the late R. J. Cullen as chief engineer of the Bastrop Pulp and Paper Co., which later became the first IP mill in the South. When International purchased Louisiana Pulp and Paper Co., which had been built by Mr. Cullen and Mr. Riis, they joined IP. Mr. Riis has directed the construction of each of the seven mills built by the company in the South. ■

# Blandy retires from American Wood Board

SCHUYLERVILLE, N. Y. — Graham Blandy II has retired as president of American Wood Board Co., Schuylerville, N. Y., "New York's most historic city," as its signs proclaim. The Blandy Paper Co. of nearby Greenwich, N. Y., is a division of American Wood Board and both are specialty paper mills.

Dallam Blandy, a brother, has succeeded to the presidency. Graham Blandy II continues as a director of American Wood Board as well as of the parent firm Hollingsworth & Vose Co., East Walpole, Mass.

American Wood Board Co. manufactures cylinder paper specialties on two cylinder machines, including pulpboards, manila, filter, duplex, gasket and Rotoformer specialties.

At the Blandy mill, filter papers, vinyl-impregnated, saturating, latex, and other specialties are made on one cylinder Rotoformer.

In both mills the new Sandy Hill Rotoformer has been successfully adapted to the operations. At Schuylerville there are also two groundwood mills. Total tonnage capacities of the special paper grades for the two paper mills is 55 tons.

Vincent A. Long, technical director for the mills, has been elected a vice president of the two companies.

Graham Blandy II served with the companies for 29 years and was president for 24 years. A retirement party arranged by Mr. Long including luncheon, golf and a dinner, was attended by business associates, customers and suppliers.

A gold watch from employes, a golf cart, golf shoes, golf balls and a punch bowl were among presents for the retiring president. Larry Horodyski, of General Motors Co., presented Graham Blandy with a lifetime gold certificate to go through G.M. plants, the first to be awarded to anyone outside honored G.M. employes.

"He is a gold-plated gentleman, rare in the business world, and I hate to see him go," said Mr. Horodyski. Filter cartridges made from material at the Blandy mills was another gift he received.

Graham Blandy III, son of the retiring president, is sales representative in New England for Hollingsworth & Vose. ■

# NY&P has new management at Johnsonburg

NEW YORK, N.Y.—The New York and Pennsylvania Co. has realigned management of its Johnsonburg, Pa. paper mill. New manager is Henry H. Bell, formerly general superintendent. He succeeds R. Neal Jones who retired after 41 years with the company.

Raymond (Ken) Guinard, formerly technical director, becomes assistant mgr. Francis W. Crowe is now general superintendent. He was assistant general superintendent.

Mr. Bell joined NY&P at its Lock Haven division as a chemist in 1937.

BELL

JONES

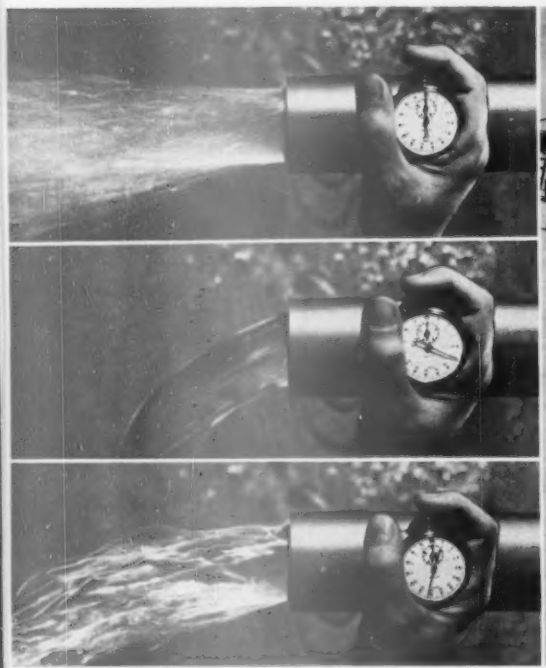
GUINARD

CROWE

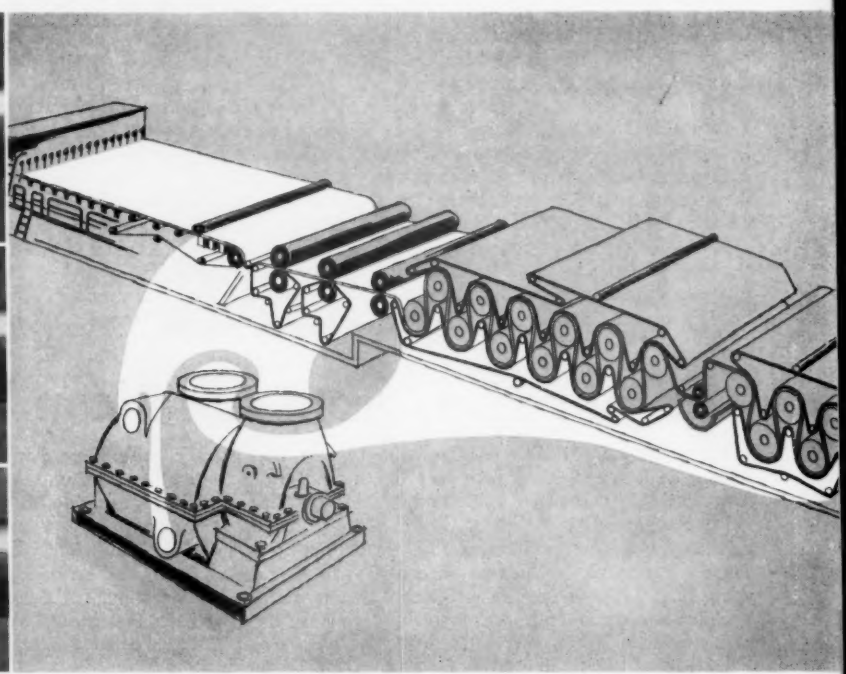
He became assistant manager of the Johnsonburg mill in 1948, and went to his recent post a year later.

Mr. Jones become . . . turn to p. 82

# ideas and news:



**ACAP pump regulates flow instantly . . .** without valves or varying pump speed. Proven ACAP (Adjustable Capacity, Adjustable Pressure) principle with internal pneumatic control automatically matches flow to demand. Regulation of flow through changing impeller clearances eliminates binding, plugging, saves power, allows system to operate at high efficiency regardless of demand.



**New VACU-THERM system inhales water, exhales hot air . . .** The centrifugal exhauster used in this new system makes it uniquely superior to conventional vacuum systems for paper machines. This exhauster permits a large percentage of input energy to be reclaimed . . . heat of compression yields hot dry air for the paper-drying cycle. Constant pressure is maintained over a wide range of volumes and paper porosities. No make-up water required. Less floor space needed. And Allis-Chalmers engineers the complete system: controls, separators and exhauster.

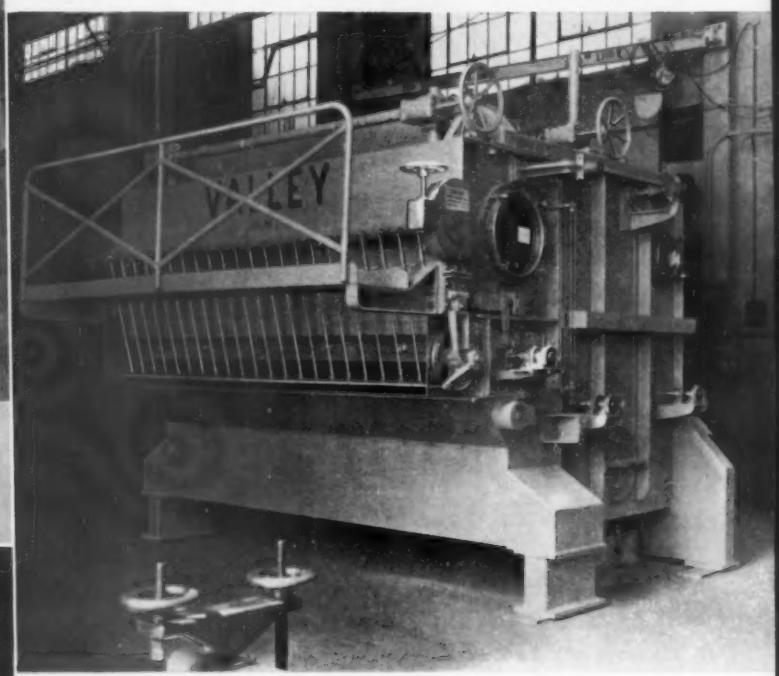
## Which of these productive ideas could be working for you?

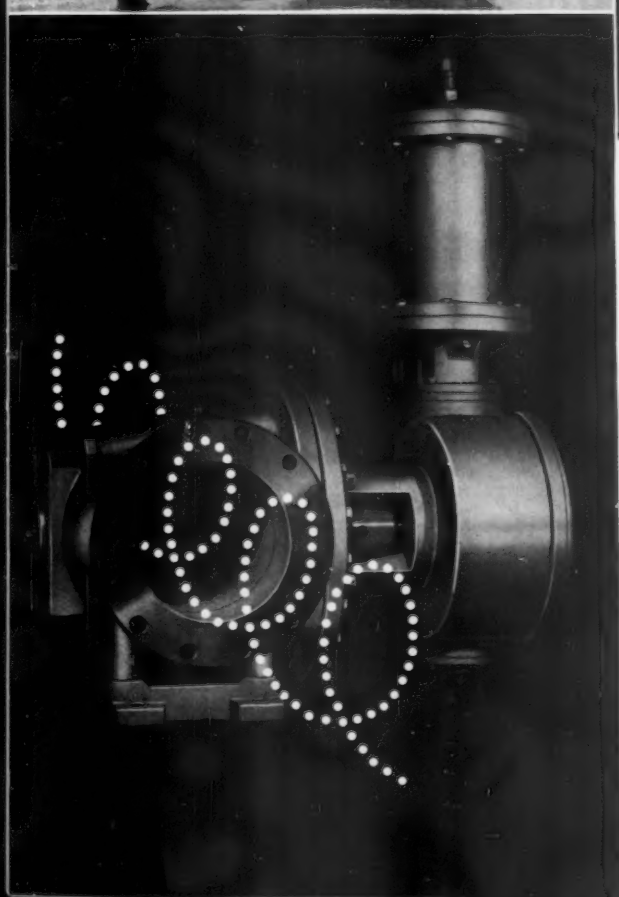
A pump that adjusts automatically. A valve that offers zero flow resistance. A vacuum system that produces usable heat. These examples demonstrate the extra value that is a standard with A-C... the greater efficiency and the added productivity which are yours when you buy A-C products, systems and services. Call your Allis-Chalmers representative for details on A-C "worth-more" features. Or write Allis-Chalmers, Industries Group, 903 South 70th Street, Milwaukee 1, Wisconsin.

*ACAP, Rotavalve and Vacu-Therm* are Allis-Chalmers trademarks. A-1456

**Water vandals turn into "weak'ings"** . . . with A-C deaerating hot process softener. At this plant scale and corrosion can't damage the boiler system. This one-two punch hot process softener and deaerator combination prevents hardness and silica salts from causing dangerous scale deposits in the boilers. Oxygen and corrosive gases are eliminated when water passes through the stainless steel deaerator section with its unique counterflow design thoroughly scrubbing dissolved gases from the water. Result: Harmful contaminants never reach the boiler-steam system equipment.

**"On-the-fly" adjustability** . . . speeds production, ends costly machine shutdowns. New — from Valley Iron Works Corporation, an Allis-Chalmers subsidiary — a headbox that allows you to change from velocity formation to pressure formation, control turbulence . . . all "on-the-fly." Offers pressure and vacuum loading, both adjustable during operation.

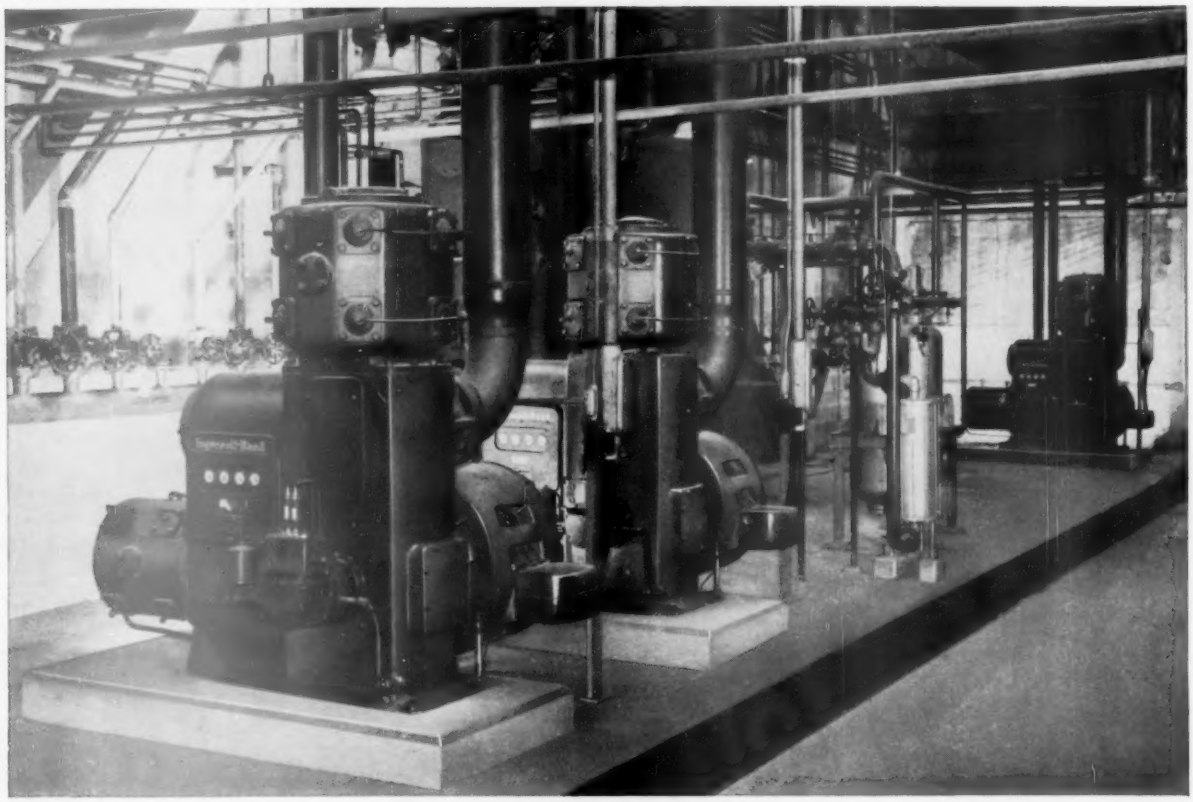


**"Open road" for unrestricted flow** . . . This ROTOVALVE, when wide open, offers no greater resistance to flow than a straight pipe of equivalent length. Promotes lower pumping costs. Actually seats itself tighter with use. And special shutoff characteristics reduce water hammer. All moving parts are totally enclosed, yet easily accessible.

**ALLIS-CHALMERS PRODUCTS FOR THE PAPER INDUSTRY:** Look to Allis-Chalmers for compressors; controls; earth-moving equipment; industrial systems; lift trucks; motors; paper-making machinery; pumps; rectifiers; electrical generation and distribution equipment; tractors; transformers; unit substations; valves; water-conditioning equipment.

# ALLIS-CHALMERS



# MORE OIL-FREE AIR NEEDED

## Alaska pulp plant uses one-third of air capacity for instrumentation, chooses three Ingersoll-Rand XLE compressors

The growth of air instrumentation in the pulp and paper industries is shown by the new Sitka pulp mill of the Alaska Lumber and Pulp Company, Inc. Previously, most pulp-paper mills have earmarked only 15-20 percent of their total compressed air capacity for this purpose, but the Sitka mill uses a third of its air supply for instrumentation alone.

To provide the air for Sitka, the choice was three Ingersoll-Rand 125-hp XLE compressors—two units for 100-psi general plant air power, and one "NL" non-lubricated compressor for oil-free instrument air. Like other I-R compressors, the XLE offers many *extra-value* features including running gear which never needs adjustment, sealed frame which keeps out dirt, filtered pressure lubrication to all running parts, and famous air-cushioned Channel Valves. The packaged, ready-to-run construction of the XLE (with pipeless Thru-Frame Air Flow) was a big help in starting the Sitka mill up *ahead of schedule!*

The XLE-NL instrument air compressor features I-R's exclusive "NL" cylinder construction, which permits long periods of continuous operation without lubrication of any kind. And Ingersoll-Rand NL Channel Valves are the only compressor valves especially designed for non-lubricated operation!

Also at Sitka are a number of other Ingersoll-Rand products, including barometric and surface condensers, over 100 pumps, and other types of I-R compressors.

Ingersoll-Rand offers the most complete line of compressors, in reciprocating, centrifugal, rotary and ejector types. There are units from ½ to 20,000 hp, for pressures from one micron to 35,000 psi. Your I-R man can give valuable help with your compression needs—call him today.

**Ingersoll-Rand**

149A1 ♥ 11 Broadway, New York 4, N.Y.

**The World's Most Comprehensive Compressor Experience**

# MEETINGS

### . . . August

**PIMA** New York-Canadian Div., Saranac Inn., Upper Saranac Lake, N. Y.—Aug. 31-Sept. 2

### . . . September

**TAPPI,** 11th Corrugated Containers Conference, St. Francis Hotel, San Francisco, Calif.—Sept. 6-8

**Pacific TAPPI,** seminar, Portland, Ore.—Sept. 18-19

**CPPA, TAPPI,** Fourth International Mechanical Pulping Conference, Edgewater Beach Hotel, Chicago—Sept. 19-21

**NW Div. PIMA,** fall meeting, Faust Hotel, Rockford, Ill.—Sept. 20-22

**Pacific TAPPI,** seminar, Seattle, Wash.—Sept. 21-22

**Northeastern Div. PIMA,** Poland Spring House, Poland Spring, Me.—Sept. 21-23

**British Paper and Board Makers Assn.,** International Fiber Bonding Symposium, Oxford, England—Sept. 25-29

### . . . October

**TAPPI** Deinking Conference, Hotel Harris, Kalamazoo, Mich.—Oct. 4-6

**PIMA Conn. Valley-TAPPI N.E. Section** Joint Conference, Equinox House, Manchester, Vt.—Oct. 5-7

**Water Pollution Control Federation** 34th Annual Technical Meetings and Manufacturers' Exhibits (with Industrial Wastes Forum and Sessions), Milwaukee Auditorium and Schroeder Hotel, Milwaukee, Wis.—Oct. 8-12

**TAPPI,** plastics paper conference, French Lick Sheraton, French Lick Springs, Ind.—Oct. 9-11

**Southeastern & Southern Divs., PIMA** annual fall joint meeting, Jung Hotel, New Orleans, La.—Oct. 11-13

**Pennsylvania - New Jersey - Delaware PIMA,** fall meeting, Claridge Hotel, Atlantic City, N. J.—Oct. 12-14

**TAPPI Annual Engineering Conference,** Shoreham Hotel, Washington, D. C.—Oct. 15-19

**National Safety Congress,** annual meeting, Hotel Hilton, Chicago, Ill.—Oct. 16-20

**Packaging Institute,** 23rd Annual National Packaging Forum, Biltmore Hotel, New York—Oct. 18-22

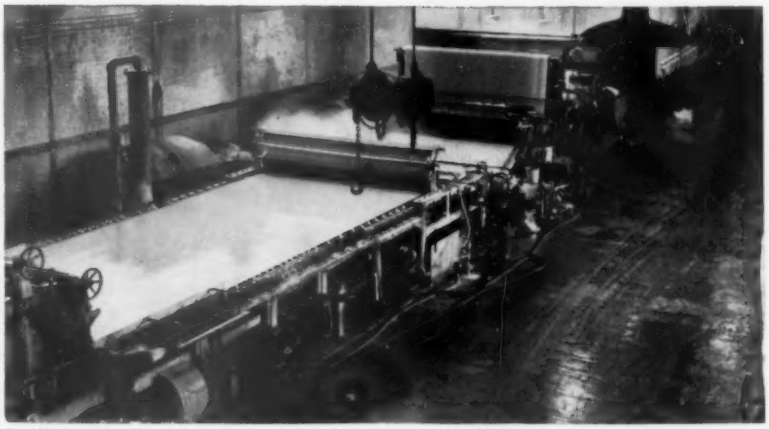
**PIMA,** Miami Valley Div., annual meeting, French Lick Sheraton, French Lick, Ind.—Oct. 19-21

**National Paper Trade Assn.** fall convention, Conrad Hilton Hotel, Chicago—Oct. 22-25

### . . . November

**TAPPI,** Annual Alkaline Pulping Conference, Rice Hotel, Houston, Texas—Nov. 1-3


# HAGAN COAGULANT AIDS
## give Fletcher Paper Company clear water without filters



Good water clarification is the key to keeping white paper white.

Clarification plant at Fletcher Paper Company. Coagulant Aid dissolving tank.

*Quick Case History—reading time 62 seconds*

**THE PLANT:** Fletcher Paper Company, Alpena, Michigan, clarifies Thunder Bay River water in an upflow unit. Without filters, poor turbidity removal or floc carryover adversely affects paper quality and cannot be tolerated.

**THE PROBLEM:** The plant had been using alum and activated silica. Results were not uniformly satisfactory. There was carryover of floc and suspended matter to the clear well. Pump and line maintenance costs were high.

**THE SOLUTION:** A combination of Hagan Coagulant Aids has solved the problem. Easy to feed (this plant is using the slurry method) Hagan Aids are producing a larger, tougher floc that settles fast. Clarification is more complete and paper production is no longer handicapped by poor water quality.

**RESULTS:** Regardless of raw water changes, water quality in the plant is good. Carryover of floc and suspended matter has ceased, in fact, one can tell whether a dime at the bottom of the 8-foot deep clear well is heads or tails. Since Hagan Coagulant Aids are in use, maintenance costs have returned to normal. Best of all, chemical treatment cost has been cut by nearly 50%.

**WANT MORE INFORMATION** on how your operation might benefit from the use of Hagan Coagulant Aids? A letter or phone call will bring complete information.

**Ask for Bulletin HSP-919.**

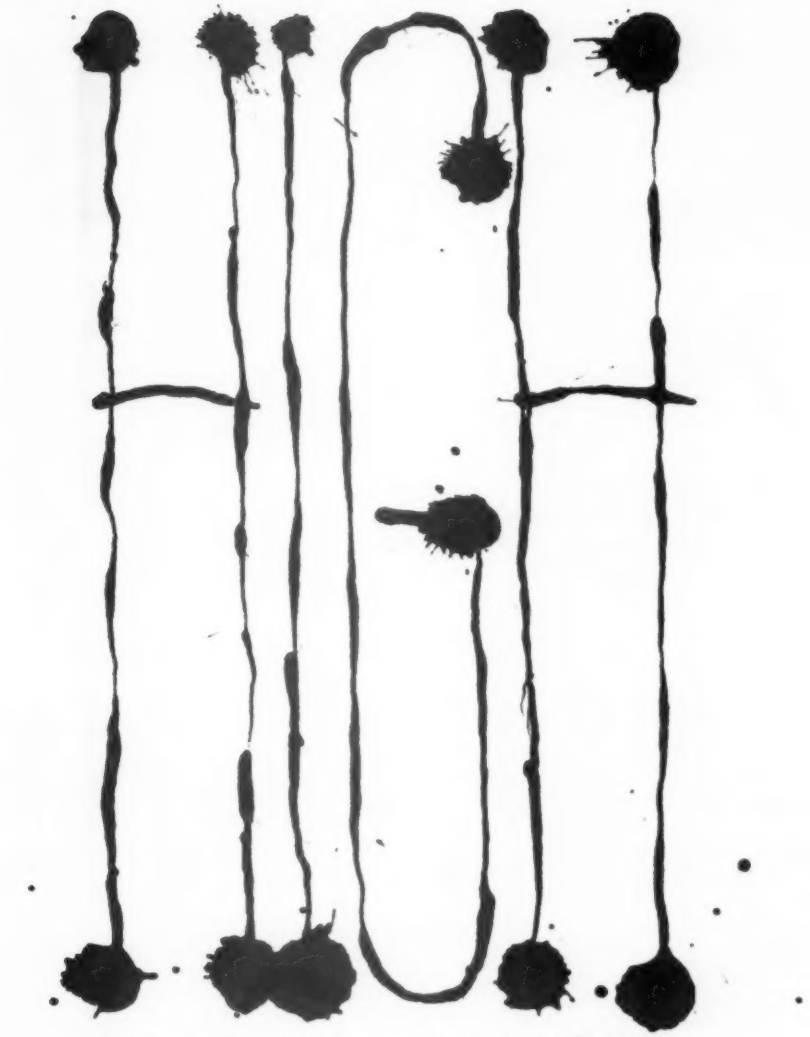
**HAGAN**
**CHEMICALS & CONTROLS, INC.**
HAGAN CENTER, PITTSBURGH 30, PA.

**HAGAN** DIVISIONS: CALGON CO.—HALL LABORATORIES—BRUNER CORP.

**MORE THAN** paper is thrown away when the efficiency of the size has not been fully realized. Time and money are also wasted. Don't let your mill face these losses. Consider Cyanamid's **high quality rosin sizes**—fortified and unfortified, liquid and dry—for dependable, cost-saving performance. And in back of Cyanamid's **high quality rosin sizes** are those all-important hidden ingredients... Cyanamid's extensive manufacturing and research facilities, and the skilled personnel who man them. Your Cyanamid salesman, with his technical training and paper-making knowledge, is truly your partner in paper progress. Ask him to give you complete information about Cyanamid's **high quality rosin sizes.**

CYANAMID

AMERICAN CYANAMID COMPANY • PAPER CHEMICALS DEPARTMENT • 30 Rockefeller Plaza, New York 20, N. Y.




# COST PER TON!

FOR BEST VALUE AND UNMATCHED

TECHNICAL SERVICE.....JOIN THE

SWITCH TO.....HUYCK FELTS!

*The New C-E VU-60*

# MODULAR BOILER

(100,000 to 250,000 lb/hr)

The modular construction of C-E's new VU-60 makes it possible to assemble custom boiler designs from standardized components. Boilers can be proportioned for efficient combustion, heat absorption and gas flow – and conform to wide variations in space conditions.

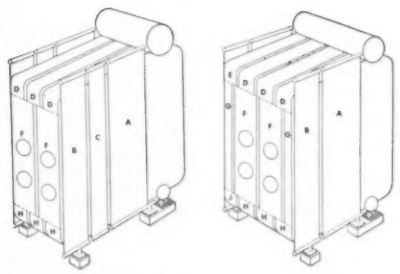
## Self-Cased

The VU-60 is *completely* self-cased. At the shop, the fins of furnace and boiler tubes are welded together to form panels. These sections are then field-welded into a pressure-tight unit that offers a minimum of weight per pound of steam capacity.

## Simplified Design

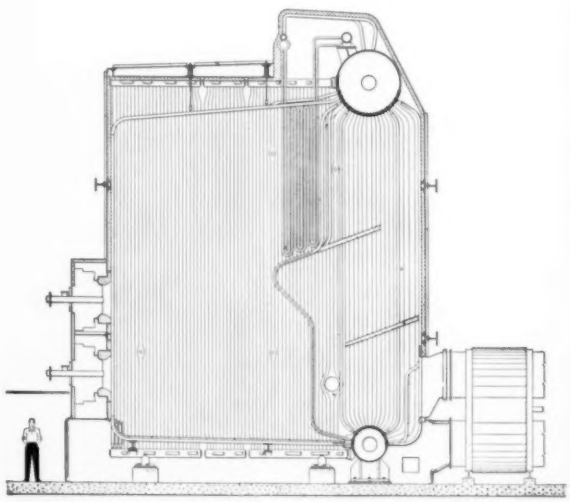
Economical, dependable and accessible, the VU-60 has no external ductwork. Installation is made on a simple, reinforced concrete slab – the bottom of the boiler forming a plenum. Cross-flow baffling and symmetrical boiler bank minimize draft loss. For oil or gas firing.

You can depend on this economical, standardized boiler for the efficient production of clean, dry steam . . . for power or processing.

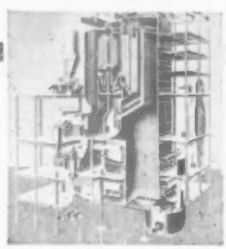


*These dimensions . . . . or these give you the same capacity and efficiency*

Letters on drawing represent a few of the standardized VU-60 components (or modules) from which – for a given capacity requirement – a wide range of boiler proportions can be obtained.



WRITE FOR LITERATURE



C-E CHEMICAL RECOVERY UNIT
Now up to 800-ton capacity

**COMBUSTION ENGINEERING** C-E
C-326
General Offices: Windsor, Conn.
New York Offices: 200 Madison Avenue, New York 16, N. Y.

## POWER PRODUCTS FOR THE PULP AND PAPER INDUSTRY

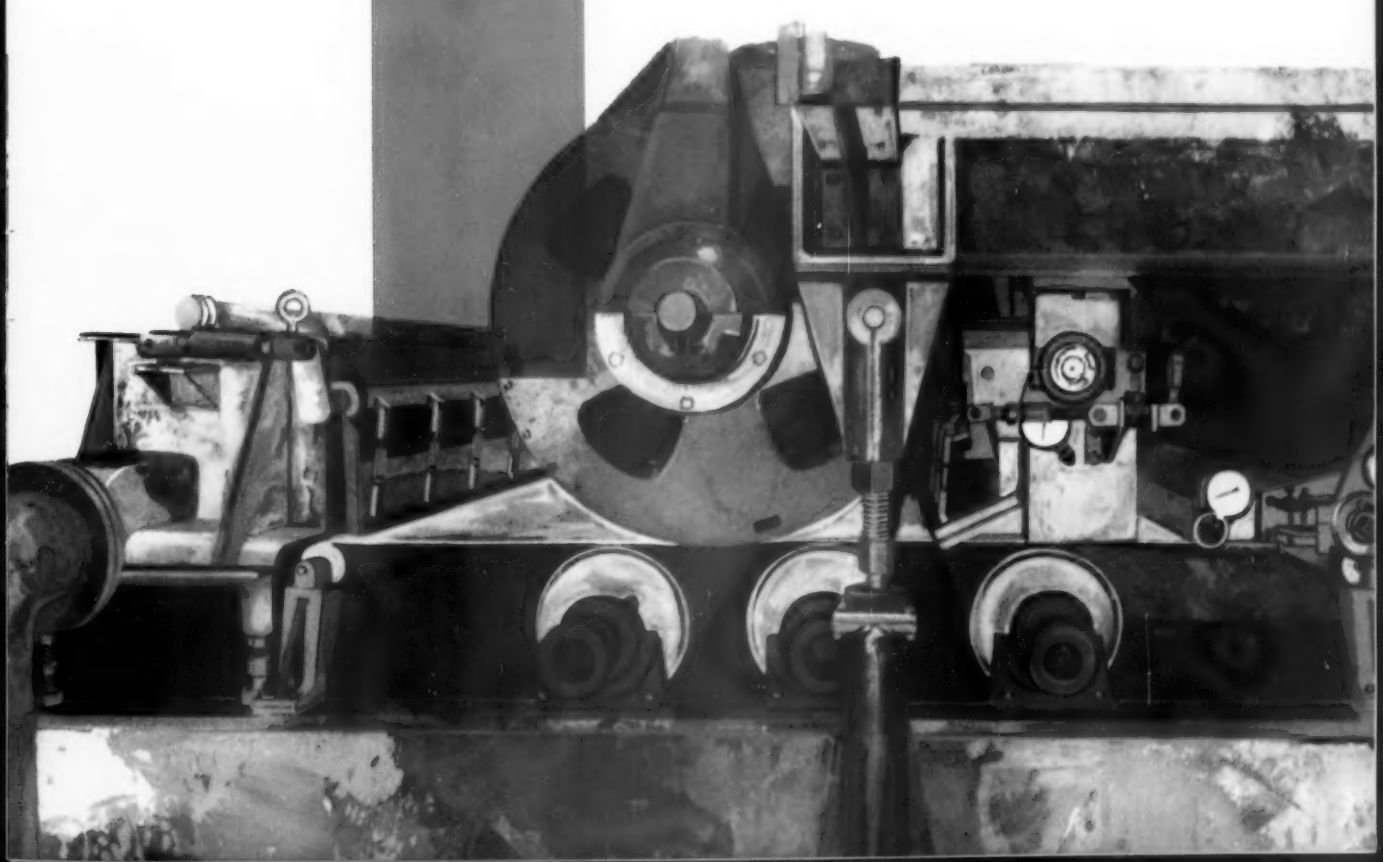
ALL TYPES OF STEAM GENERATING, FUEL BURNING AND RELATED EQUIPMENT; NUCLEAR REACTORS; PAPER MILL EQUIPMENT; PULVERIZERS; FLASH DRYING SYSTEMS; PRESSURE VESSELS; SOIL PIPE

what dramatic
new developments
does the

# INVERFORM

bring to
papermaking?

*for answer, please turn page*



# INVERFORM*

## offers new horizons to the paper industry

This new papermaking technique, embodying both Fourdrinier and cylinder machine principles, can be used in both paper and board manufacture. Inverform is a forming device which reorients fibers following their initial delivery to the wire and accomplishes water extraction in the two vertical planes. Inverform introduces the possibility of producing grades with new and improved characteristics at higher speeds than now possible, and offers the potential of new products now unknown to the industry.

- Paper grades that are made by Inverform have good formation and improved strength characteristics.
- Slower draining stocks can be run at higher speeds.
- Boards can be made with improved quality at higher speeds.
- Inverform assures excellent ply adhesion on multi-ply applications.

(BELOIT IRON WORKS builds Inverforms under license from ST. ANNE'S BOARD MILL CO. LTD.)

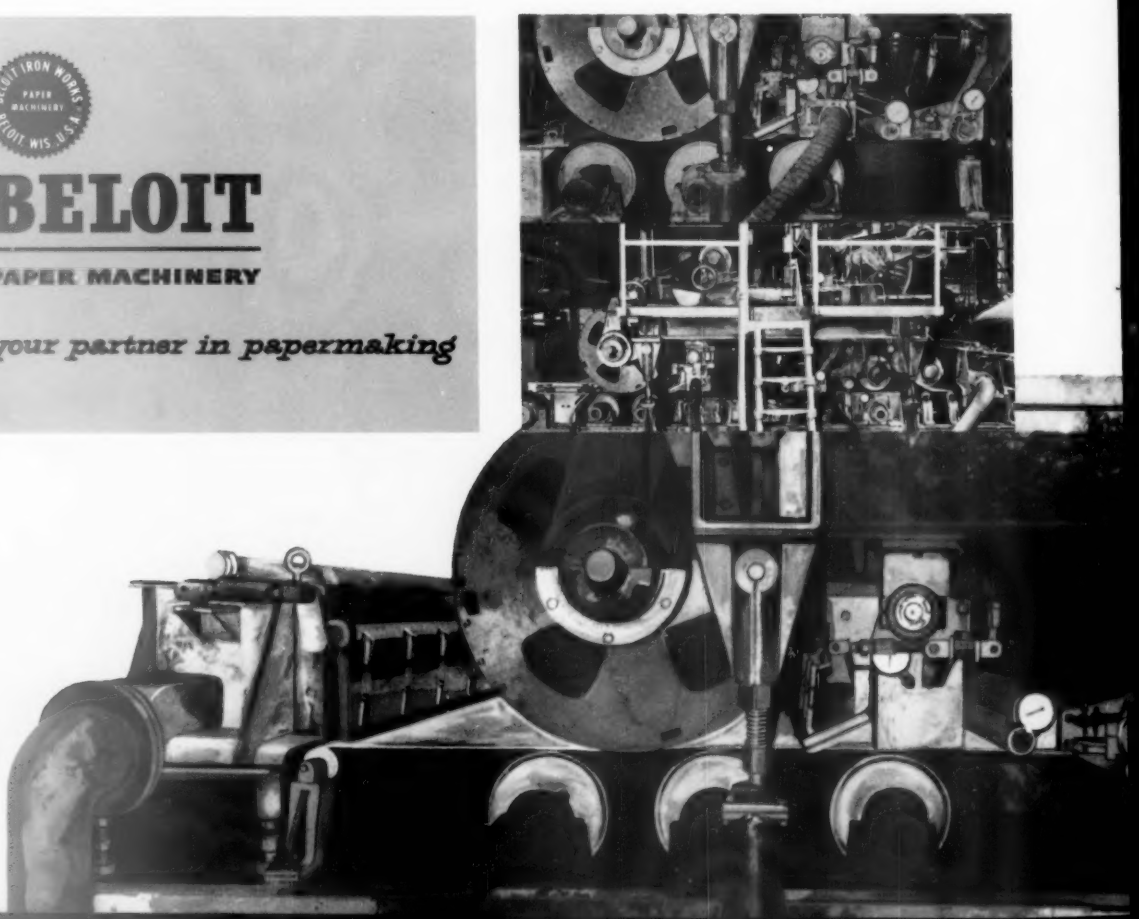
*Patented United States, United Kingdom and others

BELOIT IRON WORKS PAPER MACHINERY BELOIT WIS. U.S.A.

**BELOIT**

**PAPER MACHINERY**

*your partner in papermaking*



# For maximum quality...
# Rex bleaches with Solvay Hydrogen Peroxide

This sheet is Rex Glo Dull. It is one of the quality coated offset stocks produced by the Rex Paper Co. for high-caliber advertising printing and annual reports.

Rex starts with a composite stock containing a high percentage of reclaimed paper. Solvay® Hydrogen Peroxide, used in the bleach liquor, helps them produce high grade conversion coated offset paper. They report hydrogen peroxide provides maximum brightness without the fiber degradation of harsher bleaching agents.

Solvay technical representatives will be glad to work with you on improving brightness and reducing bleaching costs. Contact your nearest Solvay branch office . . . no obligation, of course.

**SOLVAY CHEMICALS FOR THE PAPER INDUSTRY**

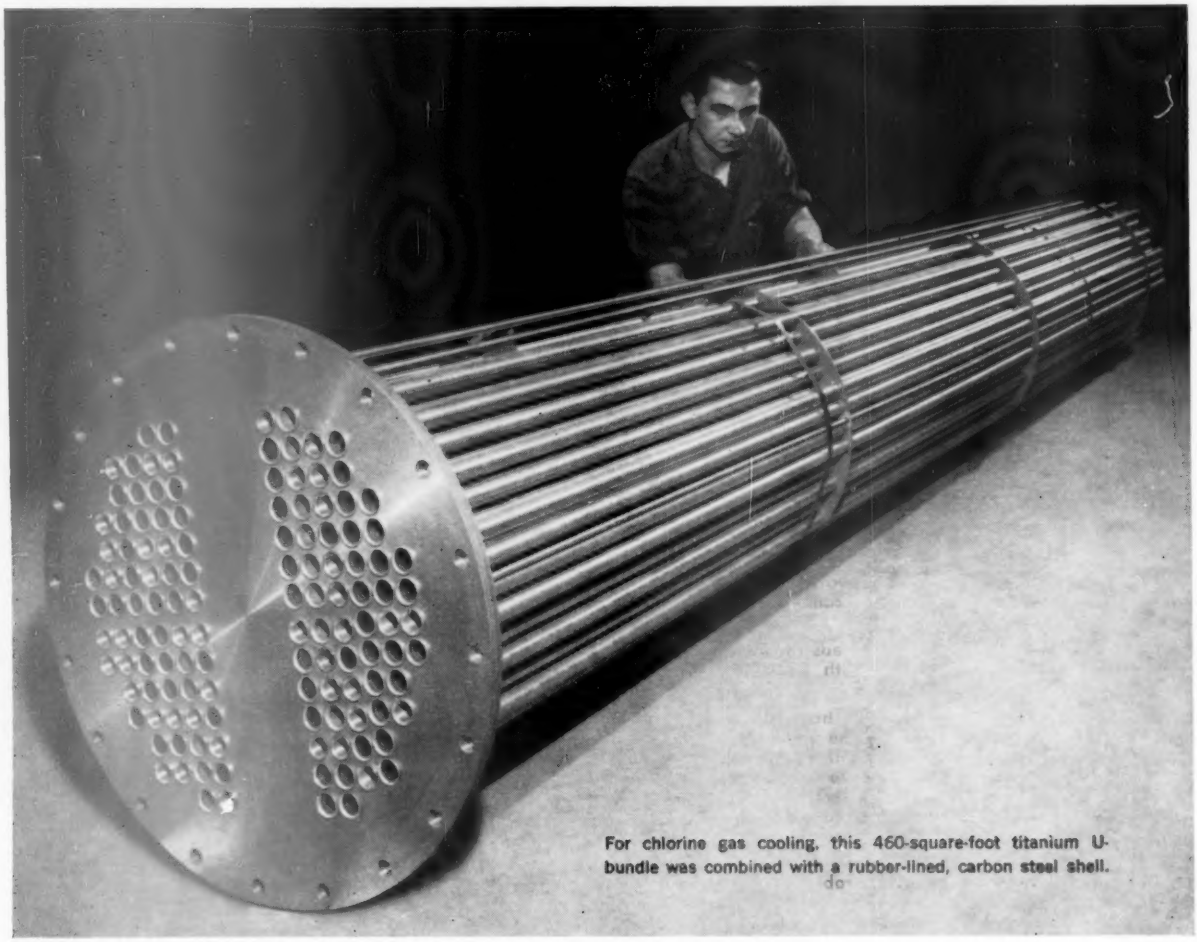
Caustic Soda • Chlorine • Hydrogen Peroxide • Soda Ash

Allied Chemical

**SOLVAY PROCESS DIVISION**

61 Broadway, New York 6, N.Y.

# FLUIDICS* AT WORK



For chlorine gas cooling, this 460-square-foot titanium U-bundle was combined with a rubber-lined, carbon steel shell.

## How to forget, *not* fight, corrosion in heat exchangers

When you bring us a problem involving heat transfer *and* corrosive fluids, our selection of construction materials will be based on these factors:

1. Corrosive nature of shell and tube-side media.
2. Process temperatures and pressures.
3. Allowable mechanical stress.
4. Optimum heat-transfer rates.
5. Allowable product contamination.
6. Pressure drop.
7. Suitability of material for manufacturing.
8. Cost.

Often our recommendation will be a *combination* of materials, in order to arrive at the most economical solution to the problem.

**Choice of materials.** A Pfaudler-designed heat exchanger can be made from any one or a *combination* of these materials: Pfaudler® Glasteel, stainless steel, Inconel, Monel, Hastelloy, impervious graphite, tantalum, titanium, or zirconium.

**Optimum design.** This wide choice means that you can buy the optimum design in terms of effective corrosion resistance, maximum heat-transfer efficiency, and low cost.

Our recommendation will be completely objective. It will be based on your product, process and budget—matched precisely to your needs.

**More facts.** We invite inquiries and we'll gladly consult with you on heat-transfer problems involving corrosive fluids. A good starting point is our new *Buyer's Guide*. It's a 16-page summary of the equipment and services we offer for handling and processing liquids and gases.

Ask for Bulletin 1010. Address your inquiries to: our Pfaudler Division, Dept. PP-81, Rochester 3, N.Y. In Canada, contact Pfaudler Permutit Canada Ltd., Toronto.

PFAUDLER PERMUTIT INC.
Specialists in FLUIDICS . . . the science of fluid processes

*FLUIDICS is the Pfaudler Permutit program that integrates knowledge, equipment and experience in solving problems involving fluids.

# YOU DON'T HAVE A VALVE PROBLEM

## DeZURIK ECCENTRIC-ACTION PLUG VALVES

The famed Easy-Operating non-lubricated valve. Sizes ½" thru 30". Manual or actuated. Used for white water, control application of chemicals, liquor, alum, clay, size, bleach, etc.

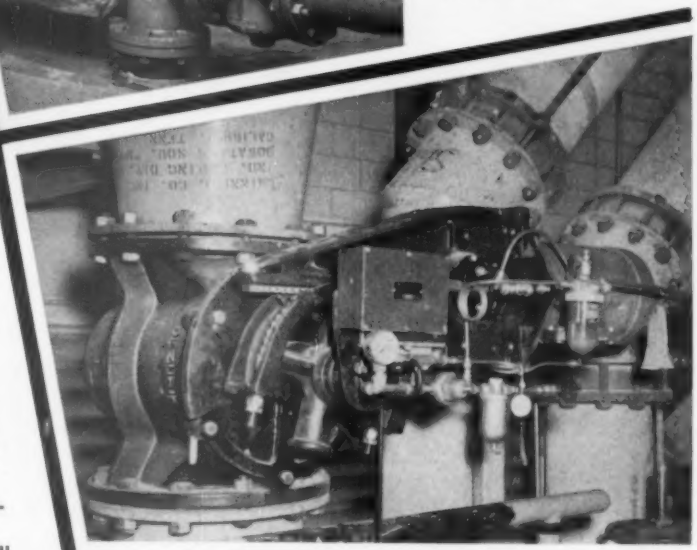
**YOU MAY HAVE** some troublesome valves, but you **DON'T** have a problem you can't solve immediately and permanently.

You can do it in the same way hundreds of mills have ended their valve problems—with DeZURIK VALVES.

For over 35 years, DeZURIK VALVES have been the specialized, specific valves for the pulp and paper industry. There's hardly a mill service of any kind—from routine water flow to automated stock control—for which there isn't a DeZurik Valve that's the exact, perfected, problem-free answer... eliminating leakage, malfunction, lubrication, maintenance!

Tell DeZurik engineers your valve problem...they'll end it!

DeZURIK CORPORATION
SARTELL, MINNESOTA

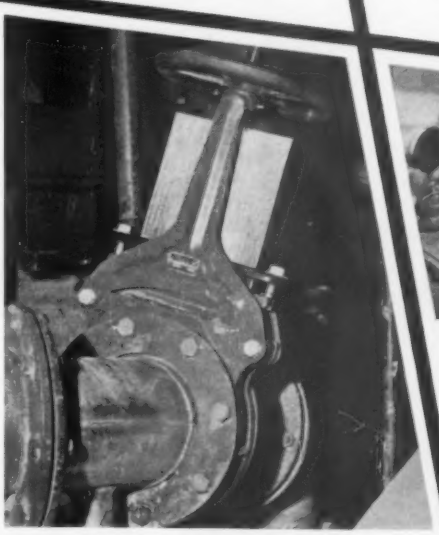


## DeZURIK VEE-PORT VALVES

Finest control valve for throttling on fibrous or viscous materials. Provides highly uniform discharge at any setting. Widely used as a Stock Control or Basis Weight Control Valve.

## DeZURIK KNIFE-GATE VALVES

Low-cost valves for longest life on a variety of services. Used on pulp stock, white water, size, clay, bark, knot, etc. Sizes to 30". Can be "customized" in materials and application to specific mill jobs.



## DeZURIK 3-WAY, 4-WAY VALVES

The preferred by-pass valve. Furnished with single or double plugs, manual or automatic operation. Like all DeZurik Valves, made in a variety of materials to handle varied services.

REG. U.S. PAT. OFF.

**SCOTCH** BRAND

## repulpable splicing tape

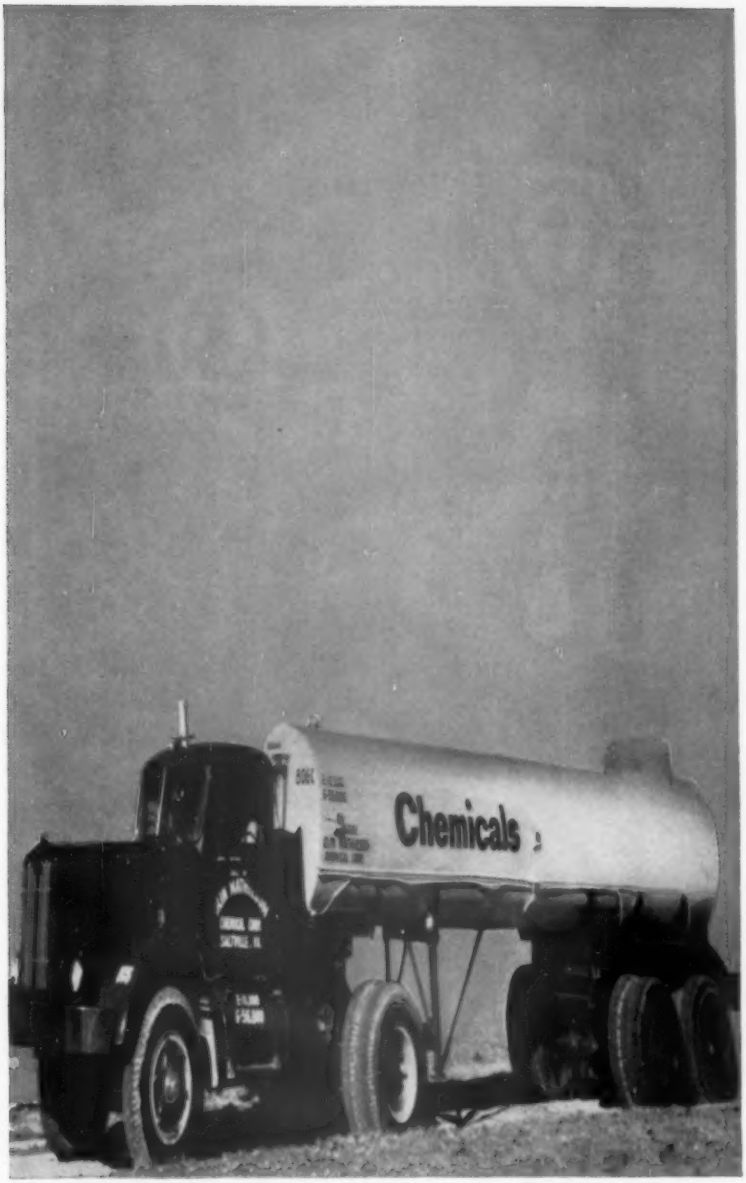
*All* of your scrap can be worth more to you when it's spliced with "SCOTCH" BRAND Repulpable Splicing Tape. This unique tape from 3M disperses completely in water or alkali. There's no possibility of contamination. The added value of your scrap pays for the tape. It's tinted light green for fast, sure, trouble-free splicing. And the splices you make – the best in the business – hold, even under the temperature of heat-set presses. If you haven't already tried "SCOTCH" BRAND Repulpable Splicing Tape No. 405, contact your nearest "SCOTCH" BRAND Tape Distributor, or write: 3M Company, 900 Bush Ave., St. Paul 6, Minn. Dept. 1BT-81.

MINNESOTA MINING AND MANUFACTURING COMPANY

3M COMPANY

. . . WHERE RESEARCH IS THE KEY TO TOMORROW

"SCOTCH" IS A REGISTERED TRADEMARK OF 3M CO., ST. PAUL 6, MINN.



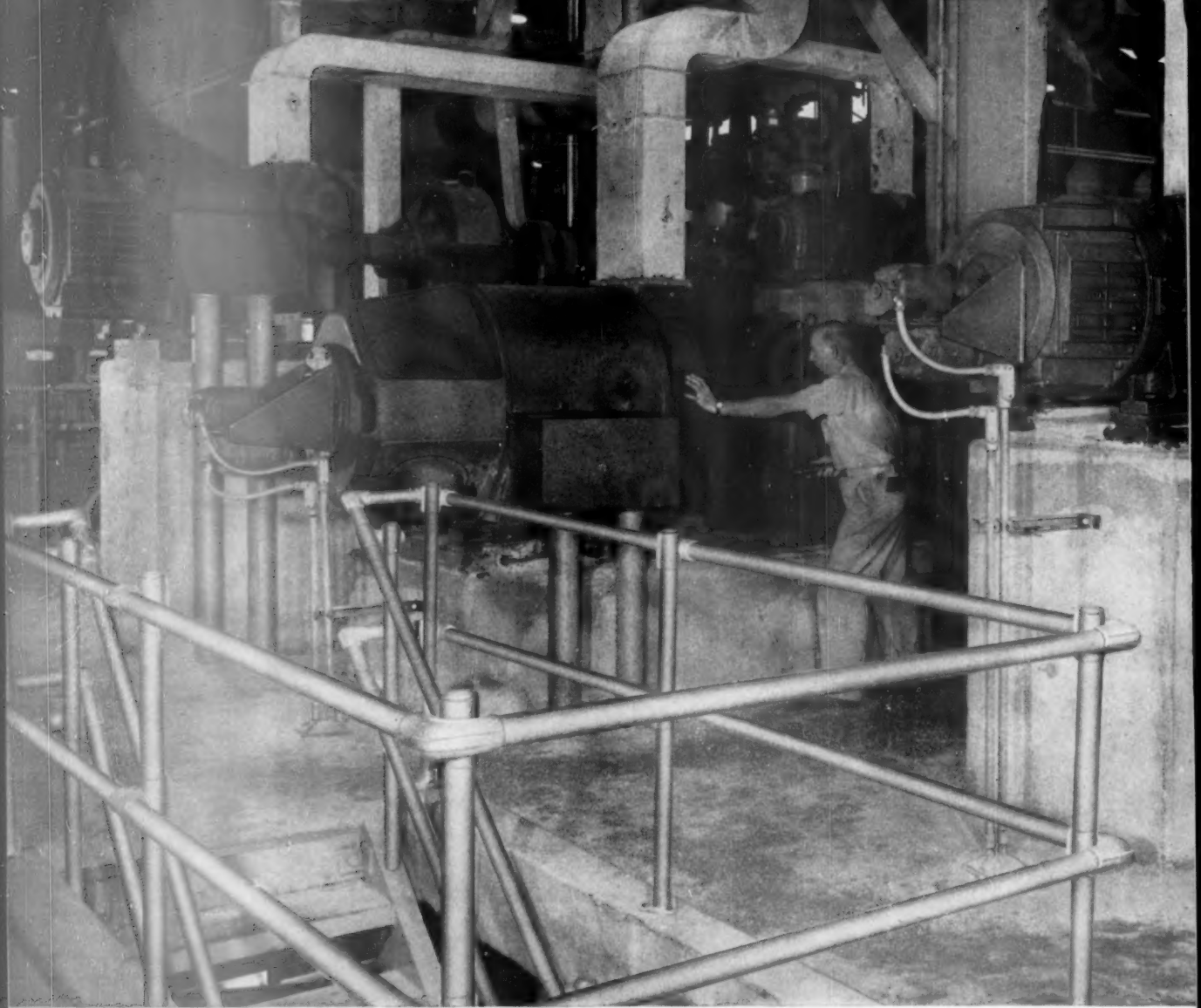

# Mathieson SQUEEZES your caustic delivery costs

**How? Many ways. For example, in most areas, you can order 73% Mathieson caustic soda by truck. The benefits to you are obvious. This concentrated solution means fewer deliveries, less shipping weight, less transportation cost. And only Olin Mathieson offers you this convenient truck delivery.**

**More ways Mathieson squeezes delivery costs? Location. Mathieson has eight producing plants and shipping points (with a ninth under construction) covering the industrial South and East, with barge, rail or truck shipments to suit your needs. Convenient truck scheduling: we time deliveries when you need them. Service: as you have a right to expect, it's part of company policy, backing every Mathieson chemical with technical assistance. For full details, write OLIN MATHIESON, Baltimore 3, Maryland.**

Ammonia • Carbon Dioxide • Caustic Soda • Chlorine • Hydrazine and Derivatives • Hypochlorite Products • Methanol • Muriatic Acid • Nitric Acid • Soda Ash • Sodium Bicarbonate • Sodium Chlorate • Sodium Chlorite Products • Sodium Methylate • Sodium Nitrate • Sulfur (Processed) • Sulfuric Acid • Urea 8947

CHEMICALS DIVISION Olin



# CONTINUOUS PAPER 5 HOURS AFTER START-UP WITH **RELIANCE** DRIVE

The first sheet of newsprint was across the machine in 30 minutes. Four and one-half hours later the drier hoods were closed, and salable paper was produced shortly thereafter.

No electrical adjustments were needed during the start-up . . . no delays in production occurred. This is the result of Reliance's Coordinated Systems Engineering. On location were Reliance Sales, Service and Application Engineers . . . to make sure the customer got what he asked for . . . and quickly.

The Reliance VSMR sectional electric drive, installed at International Paper Company's Pine Bluff, Ark. mill, is designed to operate the paper making machine at 2500 feet per minute, using 2908 installed horsepower.

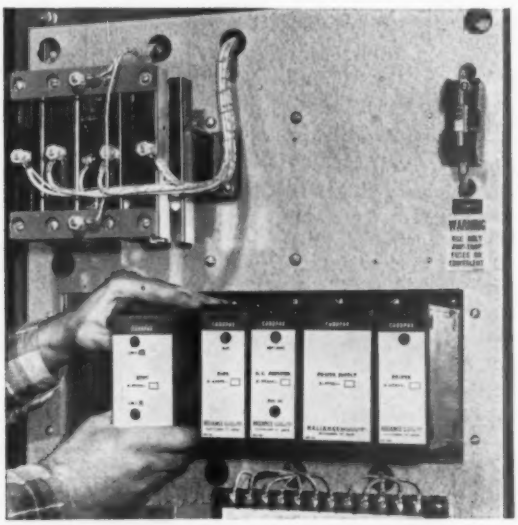
Your Reliance Sales Engineer can help you solve your drive, motor or system problems. Consult your telephone Yellow Pages, or call or write direct.

A-1690

# RELIANCE...builders of the tools of automation

**NEW DUTY MASTER D-5000** design brings you new standards in coolness, quietness . . . and more horsepower in less space. Frame dimensions that held 150 hp. now contain 300 hp. There is better heat dissipation from the frame itself. Air flows easily through the entire grilled end areas—exhausts through long, protected slots at the sides and bottom. New fingerless ducted rotor design means better cooling than any other previous motor. You get all the famous Duty Master features in this new D-5000 . . . special lubrication design, drip or splash-proof and complete open motor protection. Bulletin B-2515.

**MASTER GEARMOTORS** are built to meet the roughest type of service, as noted in this application on a self-unloading potato truck. This right angle gearmotor operates at low voltage . . . activates the chain drive of the unloader. Enclosed Master Gearmotors are impervious to water, dust, mud and other outside contaminants. They simplify installations, save space with vertical, horizontal or flange mountings . . . output shaft over, under, left or right. Full line, ⅛ to 125 hp. in right angle, parallel or combination. Bulletin E-2409.

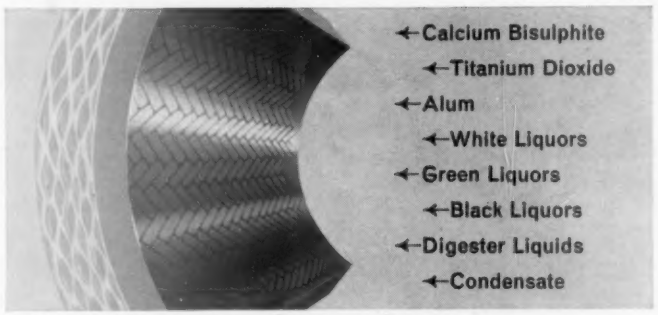


**REEVES MOTODRIVE** operates this automatic gathering machine, which collates magazine sections. Due to the varying number of books per hour . . . 1000 to 8000 . . . use of the Reeves Motodrive is both practical and economical. Speed settings within its output range are infinite. You can get a Motodrive from ¼ to 40 hp. Speeds as high as 4660 rpm. and as low as 1.71. Speed variation from 2:1 to 10:1. Hundreds of space-saving assemblies. Catalog G-100.

**NEW SCR REGULATORS AND EXCITERS.** Reliance is the first to offer, for industrial use, a complete line of regulators and exciters using solid state silicon controlled rectifiers. "Cardpak" plug-in type modules give you low maintenance—greater dependability. Now, Reliance V★S Drives are more reliable than ever, because these devices are extremely long-lasting, tubeless—and positive in performance.

**RELIANCE** ELECTRIC AND ENGINEERING CO.

DEPT. 18-8, CLEVELAND 17, OHIO • Canadian Division: Toronto, Ont.




CORROSION-RESISTANT TO CHEMICAL ATTACK—Used in many of the major paper and pulp plants, Fibercast now has proved itself to be a corrosion-free, non-contaminating piping system. It has outstanding ability to withstand damaging, corrosive liquids under high pressures and temperature extremes.

# FIBERCAST® pipe combats critical corrosion problems in the paper industry!

- *Copes with temperature range from —65° to +300° F.*
- *Withstands operating pressure range to 1200 psi.*
- *Handles 320 of the hottest 338 corrosive solutions.*
- *Available in pipe sizes from 2″ to 8″ with fittings.*

Heat, pressure, and corrosion failures can cost your paper mill money—in downtime, intermittent tubing replacements, high costs for new materials and labor.

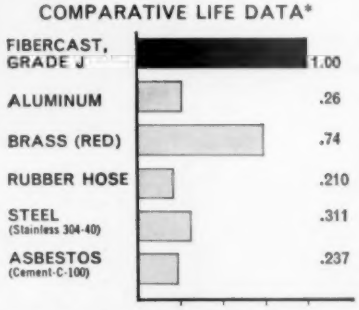
That's why it is important for you to evaluate the solid cost-cutting protection you get with Fibercast pipe. Fibercast solves your piping problems better than any other tubing. Even more expensive pipe, or pipe with thermoplastic interior coatings cannot match Fibercast's resin rich interior.

The "hot" acids, liquids and other corrosive solutions, unique to the pulp and paper industry have negligible effect on this rugged pipe. Whether used in dryer drainage systems, reaction tower installations, or in carrying such solutions as calcium bisulphite, Fibercast proves long-lasting, safe, efficient.

*The Secret of Long Service Life*

Fibercast owes its long service life—and its special resistance to heat, pressure, corrosion and contamination—to the exclusive way it is built. Fibercast is a centrifugally cast thermoset epoxy reinforced pipe with multiple layers of seamless braided glass fiber sleeving or especially woven glass fabric. A body of woven glass fibers, impregnated with epoxy resin chemically cured at elevated temperatures, gives Fibercast its outstanding ability to withstand high pressures and temperatures in corrosive environments.

COMPARATIVE LIFE DATA*




*Basing Fibercast as unit life of 1 and others as comparative percentages thereof.

Fibercast handles operating pressures to 1200 psi. It has an operating temperature spread wider than any other non-metallic pipe (—65° to +300° F.). It handles 320 of 338 (94%) known corrosive solutions.

*Reputation For Safety*

The Fibercast reputation for safety is another vital factor important to you. Most piping materials wear undetectably from the inside-to-outside and can suddenly burst without warning, inflicting injury to personnel and adjacent facilities.

Because of Fibercast's woven glass fiber constructions, such occurrences of "inside-to-outside" wear, if they *ever* occur, are detectable in minute "bleeding," easily repaired leaks.

Complete Fibercast systems are available in sizes from 2″ to 8″ O.D. And only Fibercast offers the world's most complete line of non-metallic, epoxy fittings.

Find out how Fibercast pipe can help you control costly corrosion problems in your plant. Return the coupon below and get the facts now.

**FIBERCAST COMPANY, Dept. PP-81**
**Box 727, Sand Springs, Oklahoma**

Please send me, without obligation, further details about Fibercast Pipe, Tubing and Fittings.

Name _____

Address _____

Title _____

Firm _____

Type of Business _____

City _____ Zone _____ State _____

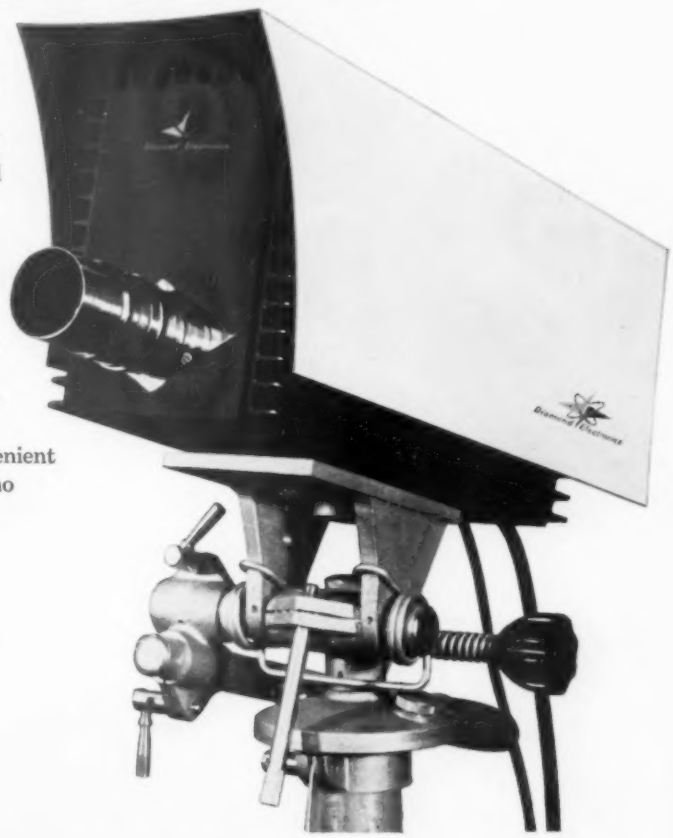
FIBERCAST® COMPANY

A DIVISION OF Youngstown SHEET AND TUBE COMPANY

New Hawk 401 Utiliscope permits...

# AN UNPRECEDENTED PROPOSITION IN CLOSED CIRCUIT TELEVISION...

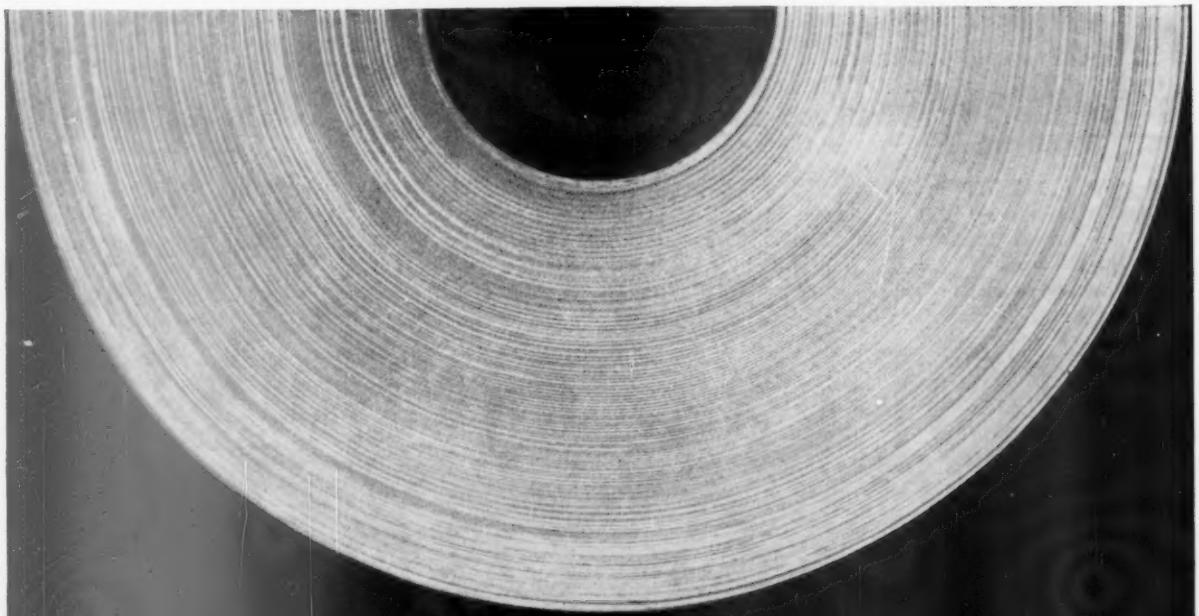
*Impressed* by the potential value of closed circuit television but *depressed* by reports of high initial cost, expensive maintenance, constant requirement for difficult adjustments, and general unreliability? Then listen . . . to an unprecedented proposition from the world's oldest manufacturer of industrial closed circuit television: Indoor or outdoors, in any kind of weather with practically any degree of illumination, Diamond Electronics' all new Hawk 401 Utiliscope is *guaranteed on a money-back basis* to provide a sharp, clear picture of just about anything . . . perimeter barriers, gates, transfer points, loading docks, construction areas, vehicular movement, rooftops, hazardous areas . . . all from one safe, comfortable and convenient location. The Hawk requires no special housing, no special power supply, no special adjustments for changing light and weather conditions. Just plug it into an ordinary 110 V outlet and forget about it.



See for yourself. Call, write or wire and we'll arrange a demonstration within the week.

**Diamond Electronics**

Division of Diamond Power Specialty Corporation • Lancaster, Ohio



- FAST, EFFICIENT DELIVERY
- EXPANDED PRODUCTION CAPACITY
- VAST NATURAL RESERVES

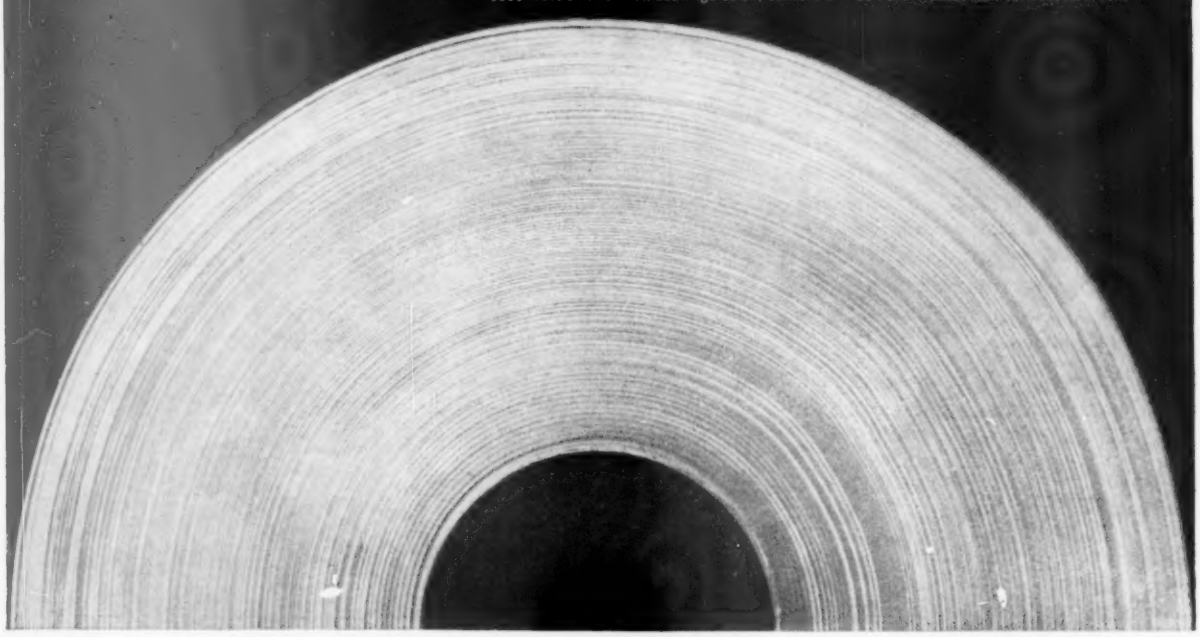
You get extra advantages when you specify these quality Trona® chemicals . . .

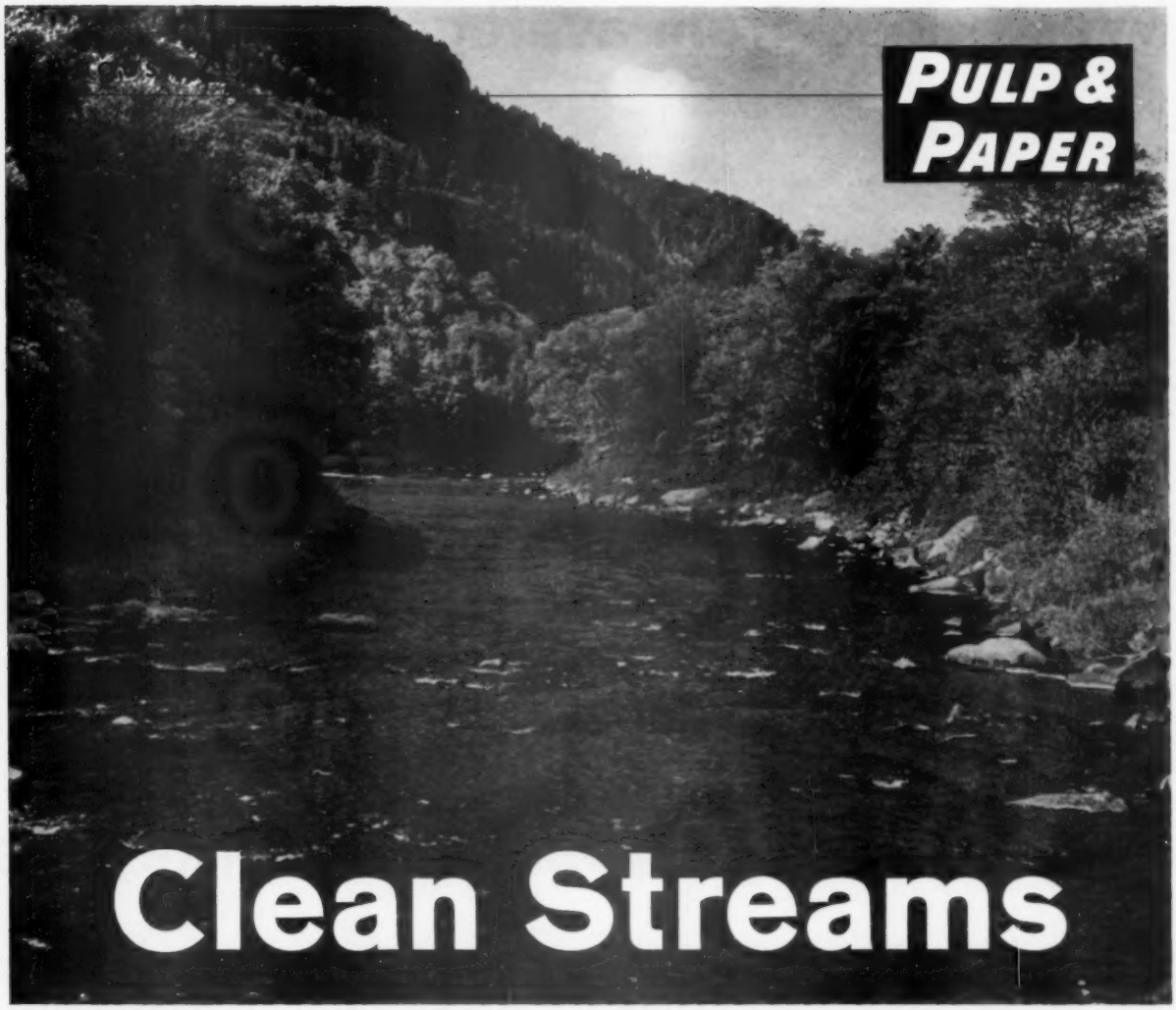
# SALT CAKE AND SODIUM CHLORATE FOR PULP AND PAPER

Unlimited Salt Cake reserves and uniform, dependable production at **TRONA**, Calif. . . . a 50% increase in Sodium Chlorate capacity at **ABERDEEN**, Miss. . . . plus extensive modernization at **HENDERSON**, Nev. . . . make Trona your best source of supply.

TRONA *American Potash & Chemical Corporation*

3000 West Sixth Street, Los Angeles 54, California  99 Park Avenue, New York 16, New York






# What the pulp-paper industry is doing to keep them that way

Starting on the next page is the first part of an unbiased, definitive two-part report on the industry's accomplishments in pollution control. Such a report is particularly timely now for three reasons: recent enactment of a bill broadening federal authority over pollution; tightening of state laws; consequent heightened public interest in the subject. In addition to filling an industry need, we feel the report could also be used to inform officials and the public of pulp and paper's strenuous anti-pollution measures. Part I details these measures; Part II will discuss ways developed by resourceful companies to parlay wastes into valuable products . . . Author of the articles was the late A. M. Cadigan, for years an expert in the field . . .

# Waste load from average ton of paper is

MUCH HAS BEEN ACCOMPLISHED by the pulp and paper industry in stream improvement during the past two decades. It is also apparent that this industry is cognizant of its responsibilities in this field. This is plainly indicated by the ever increasing effort in developing methods to further limit the stream.

Regulatory agencies in most states seem to be aware of the effort and money being expended by industry to abate pollution and maintain clean water in the receiving streams. The director of a state pollution control agency, expressing his appreciation of the cooperation of the industry with his group, stated that the pulp and paper industry of his state had reduced its stream pollution by more than 47% in recent years. His statement is doubly significant because, during that period, production increased at least 50%, population increased considerably, and other industries in the area expanded and developed.

This same pattern holds throughout the nation. In spite of continued production increases, the conditions of receiving waters are improving.

Despite this encouraging trend the pollution load of streams in general is still too heavy. Much remains to be done by this industry, by industry in general, by municipalities and others—including agriculturalists.

**Every body of water** has a self-purification capacity whereby waste materials added to it are rendered harmless and assimilated by physical, chemical and biological processes. If this capacity is exceeded by adding waste loads too great to be utilized by the stream biota, conditions of downstream water can be so altered as to reduce or destroy certain beneficial stream uses. Such a condition has been defined as "pollution".

In the designing of a waste disposal system, each mill is a problem in itself. No process can be purchased as a "packaged unit", installed and put into operation and thus "eliminate all possibility of stream pollution". Mill location—whether on tideland or inland—the hydrographic conditions, topography, climate, population, concentration or density of industrial development and numerous other conditions affect the type of disposal system that will prove adequate. Nature of the waste material is of prime importance.

Pulp and paper mills, in general, contain inert materials (suspended solids and foam), substances of a high biochemical oxygen demand (BOD), constituents that may be toxic to aquatic flora and fauna. Effluent from a paper mill usually runs high in suspended-solids content (fiber, filler, etc.), low in the other groups. Pulp mill discharge is higher in BOD, lower in suspended-solids.

BOD of pulp mill effluents is due mainly to the presence of dissolved organic matter resulting from converting wood chips into pulp, and/or the bleaching of pulp.

# Lagooning, seepage, diffusion – key ways

OXIDATION LAGOON at Owens-Illinois mill, Valdosta, Ga., where BOD is reduced without use of chemical additives.

LAGOONING FOR FLOW CONTROL by mills located on streams having an annual low-flow period has made for noticeable improvement in the conditions of waterways throughout the nation. The impounded liquid is released at a controlled rate during favorable flow periods.

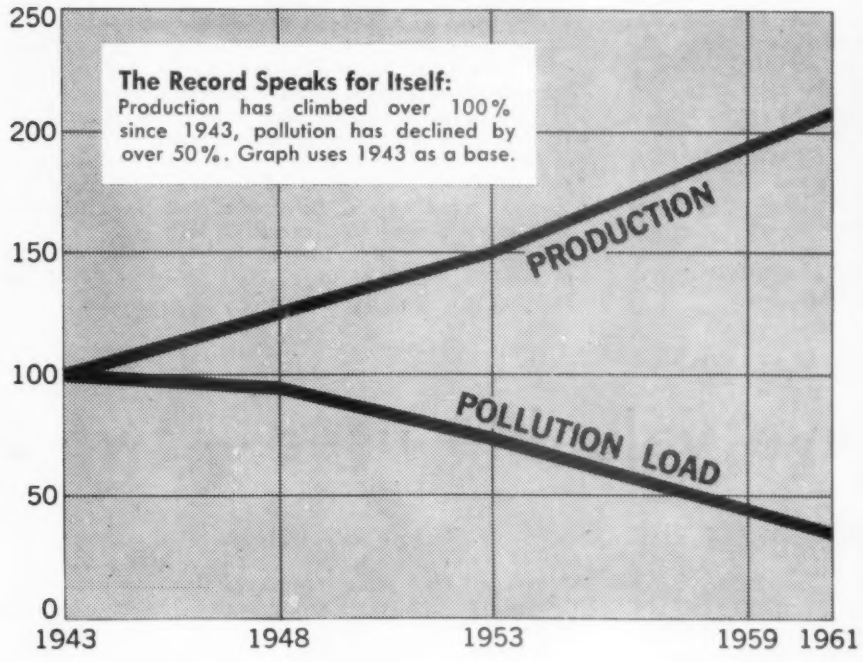
Three mills in Oregon—those of Spaulding Pulp & Paper Co. at Newberg, Crown Zellerbach Corp. at West Linn and Columbia River Paper Co at Salem, all located on the Willamette River—achieved a 76% reduction in BOD over a period of six years. This was accomplished by controlling the release of mill effluent during the annual period of low stream flow. In 1958 these mills showed a decrease of 36% in the amount of organic material delivered to the river as a result of the installation of new equipment and improved housekeeping, together with the impoundment and controlled flow release. The river's ability to sustain aquatic life and meet requirements for other uses was materially increased.

Publisher's Paper Co. at Oregon City, situated on the same river but not having land available for a lagoon, barges its wastes to the deep Columbia River channel at great expense—using barges costing $105,000 apiece. Operating costs exceed $900,000 a year.

Weyerhaeuser Co.'s bleached kraft pulp mill at Everett, Wash., pumps chemical-containing effluent (including that from the bleach plant) to a surge tank for mixing and foam-removal, thence to a lagoon. After a two-day retention, the reduction in suspended solids and in BOD is such that the outflow, permitted only on a receding tide to assure that the discharge will be carried away from the area, meets state requirements.

Other mills use this type of control to maintain satisfactory stream conditions. International Paper Co., at its mill at Springhill, Ala., retains effluent from April to October, releasing it at a controlled rate for the balance of the year. Weyerhaeuser's magnesium-base sulfite pulp mill at Cosmopolis, Wash., pumps "sour" sewer effluent into a series of four ponds, releasing it on outgoing tides.

# cut by over 50% since 1943



# pollution is being reduced

Rayonier Inc.'s sulfite pulp mill at Hoquiam, Wash., retains strong spent liquor from April to October in a lagoon located on Rennie Island. It is released over the remainder of the year to the deep channel of the Chehalis River through automatic controls.

**Effluents are also treated** by lagooning or ponding, together with channelling, before being discharged into streams. Use of the method is extensive.

A splended example of this type of installation is that of Owens-Illinois Glass Co. at Valdosta, Ga. The system has seven ponds, covering a total of 440 acres and providing retention time of 150 to 175 days. "Strong" and "weak" effluents are segregated at the mill and discharged to individual ponds. Outflow of the "strong" pond (70- to 80-day retention) is to the "weak" pond. From here the flow is to the first of two in-series oxidation ponds. A canal from the second of these connects with the secondary system consisting of three ponds, which is joined by a rapidly flowing creek that terminates at a river 7½ miles below the mill. At the terminus the fiber-free effluent has a BOD of about 10 ppm. The excellent BOD reduction, achieved without chemical additives is due chiefly to multiple oxidation and high aeration, which is obtained by flowing over dams and through channels designed to produce turbulence.

At East Texas Pulp & Paper Co.'s Evadale, Tex., operation, effluents from the paper mill (high suspended-solids content) and from domestic septic tanks are pumped to one of two settling basins for 15-hour retention to permit sedimentation. The septic tank effluent furnishes the "seeding" necessary to promote bacterial action responsible for the reduction of the BOD. Supplemental nutrient in the form of anhydrous ammonia can be added if necessary. The pulp mill effluent is pumped to a large basin, serving as a surge and equalizing-tank, for release at controlled rate to avoid a shock-load of high BOD. Overflows from the basins are carried by a specially constructed 14-mile canal to a 4,500-acre swamp which drains into the Neches River. This system treats over 20 million gpd of mill effluent with satisfactory results.

Among other mills which have adopted this type of treatment are Rayonier Inc.'s kraft pulp mill at Jesup, Ga.; Container Corp. of America's bleached kraft pulp and board mill at Brewton, Ala., and Bowater Carolina Corp.'s Catawba, S.C., kraft mill. At Catawba, the mill effluent flows across three large weirs and over three concrete aprons for maximum aeration on its way to a stabilization basin before entering Catawba River through a nozzle-equipped diffuser line lying on the river bed.

The use of weirs in the U.S.A., Germany, and Great Britain, for introducing oxygen into rivers has resulted in increases of up to 4 ppm of dissolved oxygen. In addition to aeration by turbulence, the stabilization rates in lagoons can be increased by compressed air diffusion, by the recirculation of the lagoon effluents and by using stabilized effluent from an activated sludge treatment.

**Seepage and soil filtration** are other purposes for which lagoons are used. The lagoons thus far considered have been of the impervious

or nonseeping type for confining or storing liquor until it is intentionally released. Another type of lagoon, which is of pervious structure to permit the liquor to seep away through the subsoil into the river, is in use at several mills in Wisconsin and other states. These are often constructed on an island between the mill and the main river flow. Some are along the river bank where the quality of the soil is such that it not only provides a stage of filtration of the liquor but also contains bacteria that consume the sugars and other organic matter responsible for the high BOD of the liquor.

Nekoosa-Edwards Paper Co., on the Wisconsin River at Port Edwards, uses seepage ponds and augments this treatment during the summer months by spraying liquor on a two-acre tract. Over a six-year period, the results show a 43% reduction in BOD pick-up when compared with the pre-treatment period and a reduction of 49% in fiber, which is now deposited in the lagoons.

Kansas City Star Co.'s Flambeau Paper Division, utilizes horizontal flow through soil, instead of the usual vertical flow, at Park Falls, Wis., on the Flambeau River. Because soil bacteria are more active and occur in greater numbers in the upper layers this accomplishes maximum reduction of the BOD. The liquor seeps through the soil from one ditch to the next in a series dug in sloping wasteland. The last trace of liquor disappears several hundred yards from the river and no liquor residue has been detected in the river. The higher the concentration of solids in the liquor the better the job of processing it.

The Diamond-National mill at Red Bluff, Calif., uses soil percolation and natural subterranean escapement, intensified by 12 30-in. diameter slotted pipes installed vertically in a seven-acre percolation bed.

Badger Paper Mills, Inc., at Peshtigo, Wis., disposes of 600,000 gallons of spent sulfite liquor per week by spraying it on an 80-acre tract of sandy wasteland.

# 'Wastes' have valuable uses — two are

SPRAY IRRIGATION of woodlands (and of croplands) is one useful way in which companies dispose of their wastes.

LAND IRRIGATION is another way of disposing of waste on land, especially in regions where the period of low flow of receiving streams coincides with that of a high demand for irrigation water. Such a condition occurs in a subbasin of western Oregon where, for a five-month period, the mill effluent of Forest Fiber Products Co. is successfully disposed of on adjacent dairy pasturelands.

Union Bag-Camp Paper Corp., Franklin, Va., disposes of 86% of its total BOD load and suspended solids by using evaporator condensate, digester condensate and dregs washings from causticizing, after collection in a storage lagoon, for spray-irrigation of crop lands and woodlands and treating the weaker wastes in an oxidation lagoon. Crop yields are boosted. Corn growth was increased from 50 to 135 bushels per acre; peanuts, from 1,550 to over 2,000 lbs. per acre.

**Pollution load** in kraft pulp mill effluent is much less than in the effluent of a calcium-base sulfite pulp mill, because of the chemical and heat recovery in the former. The relation approximates 500 to 700 lbs. BOD per ton of sulfite pulp as against 35 to 100 lbs. BOD per ton of kraft pulp. Constituents of kraft liquor considered toxic are commonly diluted to low concentration by the water of the receiving stream.

Attempts to dispose of calcium-base spent sulfite liquor by concentrating and burning, using conventional kraft mill equipment, has proved impractical and uneconomical. This is due mainly to the deposit of calcium salts in the evaporators. However, the Rosenblad evaporator, introduced fairly recently into this country, operates by automatically alternating the flow of the liquor and of the condensed acid vapors over the heating surfaces, thus minimizing scaling difficulties.

Due in great measure to legislation and the consequent pressure exerted by governmental regulatory agencies on the premise that concentration and burning was the most immediate method of reducing stream pollution, many sulfite mills have converted to the use of a base other than calcium, e.g.—ammonia, magnesium or sodium. Most of the conversions were to ammonia base, because existing equipment is more readily adapted to this use. No practical method for the recovery of ammonia has as yet been developed, or at least, universally accepted. In most cases, the converted mills evaporate and burn the spent liquor with no net gain (or recovery) in chemical or heat. The bleached sulfite pulp mill of Rayonier Inc. at Shelton, Wash. (now idle), was probably the first mill in the country to convert full-scale to ammonia base. In a company-designed combination evaporator and furnace, built at a cost of about $1,200,000, the liquor was concentrated by stage-pumping (counter-current to the flow of hot gases from the furnace) and burned in the furnace at a solids content of about 45%, thus providing the heat necessary for evaporation. Some fuel oil was required. Operating costs were reported as $500,000 to $700,000 per year.

Crown Zellerbach's Lebanon, Ore. mill, which converted to ammonia base, is exceptional in that it utilizes practically all of its spent liquor for the production of commercial products. These are sold under the tradenames Orzan A, Orzan S, etc., for use in dust control, emulsions, adhesives, et al.; Greenz 26, an agricultural spray for iron deficiency in plants; Viz-Thin, an oil well drilling mud thinner.

Some mills have converted only a portion of their cook-

**Submerged outfalls and diffusers** are used to dilute wastes. Regulatory agencies throughout the country have recommended that mill outfalls be submerged to an appreciable depth in the receiving waters and that several feet of the discharge end of the pipe be designed as a diffuser for more efficient dilution and mixing. The submerged pipe, by concealing the outfall, improves the appearance along the waterfront.

It is often advantageous to mix effluents from the mill departments either by use of a tank or by interconnecting the sewers before discharging to the stream. St. Regis Paper Co., Tacoma, Wash., improved stream conditions by this procedure.

Effluents from evaporators and bleach plant chlorination stages were mixed in a foam trap to discharge foam-free effluent to the adjacent river at a point below low-tide level. Other sewers (from pulp mill, paper mill and septic tanks) were interconnected to discharge via a large line submerged in the log pond. This dual discharge set-up won commendation by the state pollution control commission.

Two sulfite mills at Everett, Wash. (Scott Paper Co. and Weyerhaeuser Co.) jointly installed a stainless steel diffuser outfall, with a 1,000-ft. terminal diffuser, submerging it to a depth of 300 ft. Conditions in the receiving waters have shown definite improvement. Dissolved oxygen at low tide, formerly 2.4 ppm, increased to 6.8 ppm average; the concentration of spent liquor at the river mouth, formerly 308 ppm, dropped to 18 ppm—a reduction of 94%.

# irrigation and road binding

ing acid requirements to the ammonia base, concentrating and burning the spent liquor resulting therefrom.

**Magnesium base is used** by seven mills in the U.S. and Canada. They are those of Weyerhaeuser Co. at Longview and Cosmopolis, Wash.; Howard Smith Paper Mills, Cornwall, Ontario; Brown Co., Berlin, N. H.; two mills in Alaska, Ketchikan Pulp Co., at Ketchikan, and Alaska Lumber & Pulp Co., at Sitka; and one in Wisconsin, Wausau Paper Mills, at Brokaw. Soon there will be another one in Sweden—Hylte Bruks AB. This base makes possible the recovery of a high percentage of the chemicals (MgO and $SO_2$) and heat, thus abating stream pollution.

The capital investment for such a plant is much greater than for a conventional calcium-base sulfite mill. However, the difference in cost is lessened when consideration is given to the additional cost necessary to provide suitable means of waste disposal, with perhaps no recovery of chemicals in the case of plants of the latter type.

From the results of six years of operation at the Weyerhaeuser Longview plant and two years of operation at the Ketchikan plant, Brown and Rogers reported that the magnesium-base sulfite recovery process was "an accomplished and commercially feasible method for the continuous economic disposal of sulfite residual liquor with maximum recovery of heat and cooking chemicals."

**Use of sodium as a base** is becoming increasingly popular, especially since the rather sudden expansion in the use of the neutral sulfite semi-chemical (NSSC) method of pulping. Rayonier's Hoquiam, Wash., plant, which converted to ammonia base, is now constructing a patented sodium-base process at a cost of $7,500,000. The process uses a solution of sodium bisulfite and sulfurous acid as cooking liquor. Anticipated recovery is 85%. The sodium is recovered as carbonate crystals, and the sulfur dioxide as molten sulfur. The Rennie Island lagoon, previously referred to, will be used to retain the 15% of liquor residual until its controlled release to the Chehalis River.

The Arbiso process, developed in the laboratories of the Abitibi Power & Paper Co., Ltd., in Canada, using a solution of solium bisulfite without any free $SO_2$ as the cooking acid, produces pulp from hardwoods and softwoods of improved properties over that produced by the magnesium- and ammonia-base liquors.

WASTE SULFITE LIQUOR is sprayed on a road in Wisconsin to bind the dirt bed prior to blacktopping.

A recovery system, resembling the Mead, has proved satisfactory at a mill in Sweden using a somewhat similar pulping method. This two-stage sodium-base sulfite pulp mill is being built in Nova Scotia by Stora Kopparberg, similar to its mill in Skutskär, Sweden, and the Stora-licensed operation of Mö och Domsjö in Ornsköldsrik, Sweden. A Sivola sodium base process is in use in Finland.

**Using spent sulfite liquor** as roadbinder represents probably the first attempt to dispose of this residue. Unpaved roads were sprayed during the summer months with waste liquor by means of a horsedrawn wagon in the early 1900's. It is probably safe to say that some of the roads in every state having a pulp mill have received this treatment primarily to settle dust. In the 1930's, Rayonier made a rather thorough study of road building with the use of its product "Raylig"—a spent sulfite liquor of different concentrations.

This use of liquor is a big-volume business. In 1957, 61.9 million gal. were applied to roads in Wisconsin. Usually the only cost to the consumer is for transportation and

WATER IS AERATED by adding air to this Wisconsin stream by specially designed hydroelectric power turbines.

application. A better base for black-topping or paving is obtained when the dirt bed is properly treated with the liquor. A favorable report on a long-range experiment being carefully conducted on a road in Madison should result in a substantial increase in the quantity of spent liquor required for road building.

At last report, nine mills in Wisconsin, organized as the Wisconsin Roadbinder Association, were providing 30% of their lignin for road cover in summer months.

Among the many sulfite mills disposing of at least part of their spent liquor in this manner are Publishers' Paper Co., Oregon City, Ore., and Inland Empire Paper Co., Millwood, Wash.

**Turbine-aeration** is a rather unusual method of stream conditioning. It involves adding air to the water by specially designed hydroelectric power turbines. The oxygen content is increased in streams where dissolved oxygen content falls below desired levels. Application to the waters of the Wisconsin, Flambeau and Fox Rivers in Wisconsin, and in other locations in this country, has indicated an absorption efficiency of 15 to 26% with oxygen pickups up to 1.5 ppm. Eight tons of oxygen are added daily to the Fox River by power turbines at the mills of Charmin Paper Products Co. at Little Rapids, Combined Locks Paper Co. at Combined Locks, Kimberly-Clark Corp. at Kimberly, Thilmany Pulp & Paper Co. at Kaukauna. The Rothschild plant, Marathon Division of American Can Co., on the Wisconsin River, is modifying its turbine installation to increase the tonnage of oxygen added beyond that of the 10,000 lbs. added daily in 1957—which doubled, even trebled the oxygen content.

The addition of compressed air through diffusers directly to the Flambeau River, as practiced by the Flambeau Division of Kansas City Star Co. since 1943, has not proved satisfactory, showing only 0.5 ppm of oxygen pickup, with efficiency of 6 to 8%.

Studies indicate that power costs per ton of absorbed oxygen are $12.85 with the compressed air system, $8.45 with turbines. For a stream flow of 1,000 cfs the diffusion system requires $39,000 capital investment for equipment and $1,000 a season maintenance, as against $2,000 total installation cost, and negligible maintenance, for turbine aeration. ■

The late A. M. Cadigan participated in the industry for 43 years, first in the eastern U.S. and Canada, then in the Pacific Northwest after 1927. He retired in 1957 as chief chemist of St. Regis Paper Co.'s Tacoma, Wash., operations, where he, in reality, functioned as technical director. His broad technical experience included pioneering of continuous kraft bleaching and air-water sanitation developments.

**NEXT ISSUE: The second and final installment of Mr. Cadigan's report will appear in the Sept. 4 PULP & PAPER. It discusses many of the byproducts that have been produced by the industry from mill wastes. It also discusses the stream-load problems of semi-chemical pulping processes and evaluates six systems being tried out to solve these new problems. What paper mills are doing about wastes and water usage is reviewed. And a glimpse into the future is presented—to the day when this industry can achieve economically its ultimate goal of complete utilization of wastes.**


## REPRINTS AVAILABLE

**Reprints of the complete two-part article will be available in September at 20¢ a copy Address orders to:**

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**Pulp & Paper**
**370 Lexington Ave.**
**New York 17, N.Y.**


*PULP & PAPER wishes to thank the National Council for Stream Improvement for permission to use the pictures and graph appearing with the report.*

# FOCUS ON COATING

Hot or high gloss calendering is a new technique for finishing coated papers and boards; it offers some promise for uncoated grades, too. In this exclusive report, Thomas J. Kavanagh, assistant sales manager, B. F. Perkins & Son, Inc., describes . . .

# A New Approach to High Gloss Calendering

—Holyoke, Mass.

FROM THE OUTSET, we want to explain, just as we have to many mill people who have come to us for information, that these are ideas we have and which we have tried on our laboratory calenders. These are not yet in commercial operation. But the results we have obtained and the interest we have received prompt us to set these ideas down in print.

Q. *What is Hi-Gloss?* A. Hi-Gloss produces a far superior gloss than we get from supercalendering. Along with it we also get a superior smoothness.

Q. *What is the difference between supercalendering and high gloss?* A. In supercalendering we depend upon pressure and slippage at the nip. Hi-Gloss uses high heat (250° F to 375° F) with a minimum amount of pressure. We have used as little as 150 lbs. pli. In our experiments we start at about one-half normal supercalender pressure and then work our way down. If we find that we have to go up in pressure, we suggest a change in coating formulation.

Q. *How did you come across the idea for Hi-Gloss?* A. A printer customer asked us what we could do about varnish overlay on a printed coated sheet for more eye appeal and better finish. We developed a machine to finish the varnish overlay and from there it was natural to think of finishing coated paper that way.

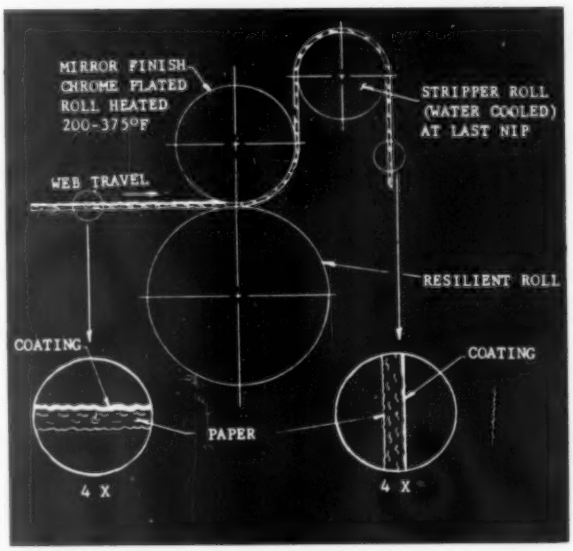
Q. *How is Hi-Gloss achieved?* A. Using almost any conventional method to apply the coating, the coated web, which has a thermoplastic resin in the binder, is then run through the high gloss calender. This calender has a hot nip consisting of a resilient backup roll and a mirror chrome finish top roll. The coating momentarily softens as it goes through the nip. Then the paper is brought up around the chrome roll for a 90° wrap without any pressure.

The coating resets itself, hardens and accepts the smoothness and high luster of the chrome roll. Speed is theoretical at present but because we use a dry coating we anticipate much faster production speeds than present cast coating methods. We think in terms of production speeds of 650 fpm, but see no reason as yet why it couldn't go to 1,200 fpm or higher.

Another advantage is the ability to finish both sides on one machine. This slows down production but the ability to finish both sides in one pass is attractive.

Q. *What improvements have you noted in your own trials?* A. Because all trials were made for interested customers on their coated papers, facts and figures on results are not available for publication. However, the general reaction is that we have exceeded their most optimistic expectations. Within our own company, the results visually have made us most optimistic about the future of this type of finish.

Q. *Do you expect this method to replace supercalendering?* A. We believe it will have a place in finishing but we can't at present foresee where it will replace high speed supercalendering on publication grade papers.




HOW HI-GLOSS CALENDER WORKS. Inset at lower left shows how uneven coating follows contour of uneven base sheet. After Hi-Gloss calendering (inset at right), coating has been smoothed down, filled in the "lows" and leveled off the "highs" in the base stock.

Q. *Does high gloss increase glare of the sheet?* A. Our experiments, have been conducted with a mirror chrome finish roll but we intend shortly to start experiments with other types of chrome finish such as satin chrome. We believe that as in our present trials, finish of the paper will reflect the surface of the chrome roll.

Q. *What segments of the industry are most interested in high gloss calendering?* A. The coated boxboard people, who haven't been able to get as good a finish as they want because supercalendering requires high pressure which tends to blacken the coating and reduce the boxboard caliper. For instance, by using the Hi-Gloss method, we have been able to finish a board of .002 caliper and only lose .0015.

Q. *Are there any noticeable advantages of a Hi-Gloss calender?* A. Yes, we have found that we have been able to improve the finish on regular coated and uncoated paper.

Q. *What type resin is used?* A. Usually a latex, about 10-20% of the binder. An acrylic resin has been tried, but it didn't show enough improvement to justify the extra cost. Too much percentage of thermoplastic resin causes sticking.

## SUPERVISION METHODS:

# Train-ups before Machine Break-ins Sharpen Efficiency of Crews

**Breaking in one paper machine is a problem. . . Breaking in two without jarring crew balance on seven others is a bigger headache. . . Lester C. Anderson, West Virginia Pulp and Paper Co.'s training director, Luke, Md., tells how his company coped with adding two 246-in. machines . . .**

OUR GOAL was to be ready in August 1960 with trained crews to make quality paper on our new No. 8 paper machine and later, No. 9 machine, without seriously affecting production of existing machines. Because the majority of these crews would come from our present seven paper machines, we would also have to prepare qualified men to replace those selected for the new machines.

Because of our expansion and ever-growing requirements for more net tons of quality paper, it would be also necessary to strengthen the knowledge and skills of each man to do his present job while preparing him for future advancement.

To do this, our training program was broken into two major overlapping areas: Training for advancement and training for the new machines.

**Training for advancement** for many years has been accomplished through each man doing the next higher job as replacement fill-ins for vacations, sick leaves and absences. This same method of training—that is, learning by doing the job—should be the basic approach to our program. We made these modifications:

Training must be given careful direction and guidance; the men should be prepared before being assigned to the next higher job; all men should be trained at the same time; their progress should be followed and guided; evaluation of performance and competence should be made on basis of standards; manuals should be developed to document experiences and knowledge of our papermakers; classroom training should bring related material on papermaking to our crews.

**We needed trainers** who were not only exceptional for their technical proficiency as papermakers, but who were also tops in their ability to work with and through people. We found such men and assigned them to: general planning of overall program; scheduling and directing train-ups; planning and developing training manuals; assisting in selection of new machine crews; teaching on the machines; assisting in evaluating personnel participating in the program; assisting in handling communications to management; union and personnel involved in the program and creating and maintaining high interest and effort of men participating.

*Condensed from Mr. Anderson's paper given at the annual meeting of the American Society of Training Directors in Philadelphia, Pa.*

We took this approach to on-the-job training because we did not have adequate time to do the training job needed. We did not know who would be selected to the new machines; therefore we had to train each man to qualify for the next higher job and to do this, we had to have all men on the machines training simultaneously.

To accomplish this, each man on the machines was going to have two jobs in the program: Learner and teacher. Each man was given two responsibilities: To qualify a man to do his job and to qualify himself to do the next higher job.

The on-the-job phase was called train-ups. Before starting this, a careful look was taken of each man, to see whether he had experience on the next higher job. A train-up schedule was made for each crew. Where a man had no experience on the next higher job he was trained from one to three weeks working with the man above. The amount of time depended on the nature of the job, the particular machine and the time the man has been on his present job and his past experience on the higher job.

A replacement was brought in from the labor pool to fill in on the lowest job. In most instances, these men had experience on these jobs. In the few instances where they did not, a short training period was given.

Since training was being held on all machines and all shifts, we were in effect training 28 men as foremen. Our main purpose in training such a large number was not that we needed so many foreman but mainly to get the regular machinetender "out of the way" so that the trainee machinetender could assume the responsibility of the machinetender's job. This did, however, permit the foremen to spend more time helping with training.

**Full train-ups started** in September and continued until the spring of 1960. All crews on each machine were continually in training. During the full train-up period approximately 150 people were involved. Several modifications were made: Many men were trained two steps above their regular job; men were moved from machine to machine within the same department to gain experience on all machines; some tour foremen were moved from one machine room to another to broaden their experience and background; some tour foremen received training as machine room supervisors. Training on the job was supplemented by training manuals, classroom training and training given by the trainers.

Traditionally, papermakers have been known to keep secret information, techniques, knowledge which they reluctantly passed on to their successors only as they re-

tired or moved to another position. Although, much of this tradition was disappearing we still faced the problem during training. We were sure that some old timers would try to withhold information they thought was protective to their security.

Realizing this and the fact that some of the men on the machines who would be doing the teaching did not know all the answers themselves, we decided to develop training manuals that could supplement on-the-job training.

**Our goal in writing manuals** was to provide accurate and complete information that would be useful not only to men learning the next higher job, but also to men learning more about their present positions. These manuals would lead to standardized procedures for doing particular jobs and also provide for a systematic approach to problems.

To accomplish these objectives, the manuals would have to be well accepted by the men. To have them receive proper use, they would be in simplified form and directed to the educational level of the majority of men on machines. The men must also feel that they have had a part in their development.

We used two approaches in developing manuals. Our major approach was to have the trainers plan, organize and develop rough drafts of the manuals. These rough drafts were submitted to the appropriate men and supervisors on the machines for their additions and corrections. Meetings were held with these people at which time their corrections and suggestions were brought out and where applicable incorporated in the next draft. This next draft received limited distribution to key paper machine people for final editing, correction and advice. Visual aids and cover designs were developed by the training dept. The final draft was then made and when completed distributed.

**A second approach to manuals** was used where we wanted to point out defects or paper machine operating difficulties and how they could be corrected. To get the thinking and knowledge of experienced people on the machines, lists of defects were submitted on blank forms to machine men for identifying the defects, the possible cause, the possible cure, precautions that should be taken, and any safety factors involved. An appropriate length of time was given for completion of these forms; then they were collected. The trainers reviewed their methods in eliminating paper defects. They then summarized their comments on a new form developing a systematic and logical approach to solving the problem based on the experiences of the men on the machines and their own.

The rough draft was then distributed to the men who participated for their final additions and corrections. The manual was then remade and limited distribution given to key personnel for revisions before the final copy was made. Manuals were given out as they were completed so that the men might receive maximum benefits over a long period of time.

**Classroom training sessions** were prepared and presented, designed to given machine crews more background in papermaking in relation to their machines and jobs. Instructors were selected from supervision, operating engineers on the machines and our technical service dept. Each instructor prepared a teaching outline for his own use. A review of the material presented was given each man after the session for inclusion into his training notebook.

Sessions included pulp and refining, pH and functions of alum and lime, sizing, drying and other wet end additives, instruments, white water system, stock cleaning, screening headbox, Fourdrinier, presses, machine drive, steam and condensate systems, drying, drying control, air caps, coating preparation and theory, printing, letterpress, lithography gravure, film on wire weaving.

The sessions were held on company time, usually on the first and second shifts. Since each machine crew had an additional man to accomplish train-ups, it became relatively easy to pull men from the machines into classroom training. Whenever possible, the men were sent to classroom training by job classification. The sessions varied from 1 to 2½ hours, were open to engineers, technicians and supervision from departments other than the machine rooms who might profit by the session.

**Success hinged on close communication** with management, the union and the men. We accomplished this through meetings, reports, written communications and personal contact. To increase effectiveness of

## West Virginia's Basic Approach To Machine Crew Training

1. Equal training opportunities should be given to all men on the machines; however,
2. Training should not be forced upon anyone where resistance to training is met, provided the individual's work is satisfactory.
3. Effort to encourage and persuade participation should be made in order for the company and the men to receive maximum benefits.
4. Participation, however, does not mean automatic advancement or selection to the new machines.
5. Selection of new machine crews shall be management's decision, recognizing that it must continue to maintain quality and production on the other machines.
6. Replacement of the men selected for the new machines must conform to the contractual agreement.
7. The training program should not interfere with the rights and privileges of the men granted in the contract.
8. Training shall not be dictated by the union; however, strong effort should be made to keep the union informed and, wherever possible, utilize their advice in licking problems before they occur.
9. Training of this nature requires line supervision's active support and help to succeed.
10. The program should be a training program and not a "flunking" program. However, a careful evaluation of the men must be made to allow for proper selection.
11. There is a strong possibility that some hiring outside the mill will be required to fill certain positions on the new machine. This will be necessary to prevent stripping the crews of the existing machines.
12. The training program will cost a considerable amount of money. The program, however, should meet our objectives, and also benefit the company through:
    a. Improved production through better trained crews.
    b. Reduced rejections and improved quality.
    c. Reduced down times through improved performance on wire changes, felts, start ups, and shutdowns.
    d. An improvement in morale through better understanding of jobs and seeing advancement opportunities.
    e. Improved safety.
    f. Reduction in need for close supervision as crews become better qualified, thus permitting more time for other supervisory functions.
    g. Provide better qualified people for vacations and sick leave fill-ins, thus contributing to better production.

on-the-job training, the trainers spent a part of each week with the men on the machines. Series of check and key questions for each of the various jobs were used as guides for their teaching machine practices to the men.

The trainers, well qualified to begin with, probably gained the most from the training experience. Through their work in the development of manuals, they also gained technical information through the exchange of ideas and experiences.

Each in his own way developed his leadership abilities and was given the opportunity to show his capabilities. It is interesting that each trainer received recognition through the process. Each was promoted. One from machinetender to tour foreman of No. 8 and 9 machines. One from machinetender to lower mill machine supt. One from foreman of Nos 6 and 7 to 8 and 9. One from supervisor 6 and 7 to supervisor of 8 and 9. Another trainer was selected when one was promoted. This man, too, has become a foreman.

A welcome trainer was our paper mill supt., who retired and found this as a means to contribute further to the company by sharing his experiences with future papermakers. He added much to to the program.

Each trainer received job instruction training as well as one-third of the foremen and several key machinetenders.

**New machine training began** officially when we took positive action in our selective process. We wanted to consider each man on the machines as a candidate for selection. We faced some problems. It was not feasible to take all older men with the most experience nor all the youngest men. We could not take heavily from any one machine room. We must still maintain quality paper on the other machines, therefore, we had to think of leaving strength where it was needed.

We met mixed feelings among the men as we discussed informally their interest in going to the new machine. Experience with start-ups had taught us that there was much extra work, effort, headaches that went into it. We wanted men who first of all strongly desired to go to the new department.

Through interviews with every man on the paper machines, we learned their true reactions. Key questions were developed for a structured interview conducted by the supervision of the new machine.

The list of candidates grew smaller. Supervision began to make pre-selections of key men and then mentally juggled machine crews as to strength and weakness. When final selections were made each man was again interviewed to determine if he still wished to work on the new machine. Only one backed down when told he had been selected.

Orientation meetings gave the men much information about the program and built up interest. Selection of foremen and operating engineers and freeing them from their regular duties to begin to plan and prepare for the training program helped the program take shape.

**We could not use present machines** as a training classroom for the new machines. The new machines were faster, wider and considerably more complicated than anything we had. Because major sections were similar to a machine we had at Charleston, S.C., we decided to send our key men there for training.

Before trips were planned, a pre-training trip was made to take pictures of the machine and all phases of its operation. A training program was then set up to prepare each group for a week of training at Charleston. This one week training presented a preview of what they would see and what they should look for. It gave each crew an opportunity to also start to learn our machine by blueprints and tours to the machine after construction men left each evening.

From the list of subjects and amount of time needed to cover each, we decided that approximately eight weeks would be needed of intensive training. This training was started in time to meet the start up date.

**Successful techniques used** in our program include: use of color on sections of blueprints for men not skilled in blueprint reading; pulling single systems from master blueprints for example, white water and fresh water and illustrating them on separate sheets; using schematics of pumps and equipment to teach men not skilled in blueprints. As part of training, crews identified piping and equipment with stencils and tags. This helped in making them familiar with location and systems. For review purposes we handed out sheets showing equipment. The students traced connecting pipe lines, control instruments, etc. and illustrated them on the handout sheet.

Periodic or weekly tests were used for motivation but more important for review. We also showed photos of out of the way equipment, unusual views or systems and had trainees identify them, their location, purpose, how they operate. This created much interest and helped crews to become more aware and alert.

We also used a technique that always works, if not overworked. We had the trainees ask each other questions. Usually, choice bits of wisdom or "secret" knowledge were proudly displayed for the benefit of all.

Although a "reject practice wire" and felts were provided for training we found it more useful to use large pieces of unbleached muslin in place of a wire and felts. The same techniques and procedures of actual installations were followed and learned, however, the process could be gone through more quickly. Time was saved in rewinding the muslin, getting it ready for the next crew or for the following day.

Our training crew for key men continued until equipment and systems were ready to be tested and checked out. The crews were not only vital and useful in this work in assisting the engineers but it was profitable for them as a learning experience. ■

## How Train-ups Helped Program

1. It was a means of training many men at the same time.
2. Training for all members of each crew was accomplished by addition of one man at the broke hustler level.
3. The cost of this training was the rate of the man in the highest position.
4. The men on the crews were not paid the higher rate until they were actually doing and assuming the responsibility of the job on their own.
5. In cases of serious machine problems the regular crews could revert back to their regular position in a matter of minutes.
6. The length of time required to bring a crew to full train-up varied with size of the crew and experience of the men in the next higher jobs. Training of crews in these early train-ups varied from 3 to 14 weeks depending on the size of crew and experience of its members.
7. The man brought in as broke hustler was receiving training and could be evaluated as to wether he would be suitable as permanent machine room material.

# Industry Will Meet—and Beat—Challenges of Future

By PAUL C. BALDWIN, Executive Vice President and Director, St. Regis Paper Co.

THE U.S. DEPT. OF AGRICULTURE in 1924 prepared an article that discussed ways in which the U.S. could meet future pulpwood requirements. Those who prepared the article made estimates that doubtlessly were considered rash, if not ludicrous.

For example, one prediction was that by 1950 the U.S. would require 13½ million tons of paper and board to meet its needs (1950 consumption actually was 26,203,000 tons).

In retrospect, it is easy—almost too easy—to find ourselves amused by such an estimate because today we know that paper and paperboard production for 1950 far exceeded that modest estimate of 1924.

I mention this report because projections of this sort are necessary and worthwhile. I am confident that the growth pattern will hold true in the years to come, and that our production estimates of today will, in reality, be exceeded substantially.

I am neither an expert nor a prognosticator. But I do hold some definite opinions about the future of our industry.

Our industry clearly has entered a new and exciting era. At this point, we perhaps find the future a bit frightening. But whatever comes, I have unshakable confidence in pulp and paper, and I submit that opportunities that are almost boundless lie before us.

**Our period of adolescence** as an industry is finished. Until very recently, our growth had been similar to that of a teenager who grows bigger physically yet doesn't quite know what to do with his new-found strength, energy and potential. Now, in the face of great challenges at home and abroad, we can demonstrate to all the world that we are not just growing—we are truly grown up!

Last year was not quite so kind to our industry as we had hoped. Many companies, particularly in the U. S., found rising costs pinched profits.

In Canada and the U. S., pulp and paper production in 1960 exceeded that of 1959; employment and wages were on the rise; product value increased. Yet earnings in the U. S., on the whole, were lower than those in 1959. The Canadian picture was somewhat brighter. If we are disappointed in last year's results, however, I suggest our disappointment was generated perhaps because we expected too much—too fast.

Perhaps we were easily beguiled and thought growth and prosperity would be ours merely by tearing off another page from the calendar.

**But the events of 1960** brought us up sharply. Part of our maturity will be realized if we recognize and evaluate the situation realistically. I say to you today that the road ahead will not be an easy one. But I am convinced that we shall meet on all fronts the challenges which can result in our industry's becoming stronger, more progressive and more united than ever before.

Our over-all position is excellent. The pulp and paper industry possesses a sturdy foundation upon which to build. Ours is an industry of growth and stability.

Our raw material, wood, is a self-replenishing resource and is available in abundant supply. And we know that we can keep this supply in abundance as long as we maintain good forestry practices.

Our production facilities are large, diversified, automated to a great extent and integrated. Labor costs and labor relations are most favorable in comparison to those of other industries. The product we sell is inexpensive and highly adaptable to fill many needs. And our market is certain to expand.

The push of world population will be the most significant factor in creating more markets.

**Let's look at the challenges** which face our industry in North America. As I see it, we must gird ourselves on four fronts:

1. We must prepare ourselves for the challenge of the Communists.

2. We must be geared to compete effectively with the countries of the free world.

3. We must attain a strong position from which we can meet the growing competition from outside our industry.

4. We must continue to face the keen competition within our industry.

The Communists are in an excellent position to make dramatic, if not rewarding, gains on the world scene. They are dedicated to the purpose of overcoming the free world on all fronts, regardless of the cost. No sacrifice is too great.

The Red Chinese, for example, claim they have planted 28 million acres of forestland with the aim of doubling their forest area within ten years.

Mr. Khrushchev boasts that in 1960 Russia increased newsprint production by 80% over 1959. And he claimed Russian pulp production in 1960 would surpass that of 1959 by 130%.

(In actuality, newsprint production increased only 12% and pulp output rose even less. See PULP & PAPER, World Review Issue, July 24, 1961).

When a group of Russian papermakers visited British Columbia last year, they indicated Russia would make no attempt at price-cutting in pulp and paper on the world markets. I must admit I took that statement with more than a grain of salt.

Russia's economy is such that, when the time is ripe, substantial amounts of pulp and paper might be sold to certain markets, regardless of the needs at home. I think that Russia will not hesitate to enter the world market on an expanded scale when she believes such a move will work to her best advantage, particularly for propaganda purposes.

**A multitude of interesting things** are developing in other countries. Perhaps the biggest area of activity outside our own continent is Europe. Representatives from many European nations are negotiating for important changes in tariffs and trading policies.

Should this union of the six Common Market and the seven EFTA countries occur, a powerful economic force will have been established. It will be a significant move, particularly

in view of the increasing need and desire for paper by the peoples in many nations. The Scandinavian countries are moving feverishly to expand capacity. Sweden is expected to increase her pulp capacity by nearly 30% within three years. Her papermaking capacity also will be expanded significantly. And by 1964, Finland aims to step up her pulp capacity by almost 40%.

Elsewhere in the world, the common market concept is growing rapidly. A project to establish a common market system in Africa is under way. Another common market area might develop soon in Central America.

In North America, we must continue to build better quality and value into our products and, at the same time, we must search out new and better products. We can no longer cling to the old phrase, "Paper is a substitute for many things, but nothing is a substitute for paper." Plastics have sliced into paper sales. Recent statistics indicate some 400,000 tons of paper have been displaced by plastics for packaging, insulation, containers, and other items. And this is just the beginning.

**A look at the world situation** dictates that we continue our program of foreign investment if we are to gain our share of the foreign pulp and paper markets. As new markets develop, we also must be prepared to make concessions and be willing to listen to the ideas of others around the world.

Diversification will play an important role in our future. The decision to diversify, however, should never be made hastily.

The company that decides to expand its product mix should do so only after it has planned and programmed systematically. Corporate objectives must be weighed carefully, and long-term sales growth patterns must be evaluated sensibly.

Any successful business must be customer-oriented rather than product-oriented. There is no guarantee against product obsolescence. If a company's own research does not make its products obsolete, another's will.

Now let me be more specific on what we must accomplish to remain competitive. One very important area is cost reduction, particularly in woodland activities where we not only can effect big savings but we also have important chemical potential.

**Wood costs have been rising** and today they represent from 23 to 34% of the cost of manufacturing paper. This figure will vary by organization. But the fact is that since wood cost is a major expenditure, it therefore represents a potentially great saving.

It is all the more important for us to remember this aspect of our business because, while the cost of raw materials for plastics is decreasing, wood costs are rising.

Today we are using many so-called "weed trees" such as alder, aspen, and poplar. We also are using edgings, slabs, trimmings from saw mills, together with veneer cores. Wood utilization in these forms is significant in our continuing battle against increasing costs.

We are utilizing new harvesting and transportation equipment and we are finding new techniques, all of which are designed to save dollars. Our research in genetics and relationships among forest resources is making steady advances. Through its efforts, we hope to grow superior trees at a faster rate, and trees that can resist damage from insects and disease. We hope to find faster, more efficient means of harvesting our trees, and we are searching for more ways to leave less of each tree in the forest.

Ultimately, we hope to solve the one problem which thus far has withstood the efforts of research personnel over the years—the problem of discovering a commercial use for lignin and other chemical compounds that are found in wood.

Much progress has already been made in this field, spent liquors are being used to produce alcohol, yeast, vanillin, drilling mud, adhesives. Not one of these uses, as yet, has the potential of absorbing the vast quantities of available lignin.

## Scott Paper executive v.p. rose from lab assistant in two decades

Paul C. Baldwin, executive vice president of Scott Paper Co., in charge of its manufacturing, research and development, and a director of the company, discusses many subjects in this article of vital concern to the pulp and paper industry.

He has had one of the richest and most varied experiences in this industry since the days when he was reputed to be the "youngest superintendent" among superintendents of the important mills in the country. He was in his 20's when he took over that post in the company's Chester, Pa., plant—then, as now, the largest tissue mill in the world. Then when he became manager of this same mill, it is true, probably, that he was the youngest paper mill manager in the business.

Mr. Baldwin was born in Tully, N.Y. He was graduated from Syracuse U. and earned a master's and a doctor's degree at The Institute of Paper Chemistry. He joined Scott in 1940 as a laboratory assistant, and in less than three years, he was technical director, and, just a few months later, superintendent at Chester. In 1947 he was advanced to plant manager.

In 1950, Mr. Baldwin became assistant to the general manager of all Scott mills, and the next year, assistant to the general operations manager.

In December, 1951, he moved to Everett, Wash., to head up the integration into Scott of its biggest acquisition in history, the former Soundview Pulp Co., the biggest sulfite pulp operation in the world, with vast woodlands. His title was assistant vice president and later vice president. He directed the building of a huge paper mill at this site. In 1957 he returned to Chester and took over direction of development, research and engineering, then all manufacturing. He was elected executive vice president in 1960.

His wife is the former Margaret Mary Fargo. They have three children.

**Regarding pulp and papermaking** there exists a great need for simplification of machinery and equipment. Costs for machinery are increasing; we must seek new ways to simplify our operations. In our integrated mills today, we are finding it necessary to invest from two to four dollars to return just one dollar of annual sales.

One of the basic problems with every piece of machinery we purchase is its high price. It is impossible, of course, for us to do anything about labor rates at the fabrication point, but I believe we can do a great deal to offset these initial expenditures. Our research and engineering personnel can help by simplifying designs, fabricating techniques and maintenance needs.

We also must improve sheet forming, pressing, drying, screening, coating, creping, and calendering. And we must strive for minimum instrumentation systems wherever possible.

**We speak of automation** inevitably when we speak of new and simplified equipment, more efficient systems and increasingly better processes—the offspring of research and development.

I am convinced that implementation of automatic processes is essential if we are to succeed in the highly competitive market.

Our success, too, will depend largely upon our ability to cope with personnel problems arising from increasing automation.

We must be assured of top quality men and women who can operate the new machines and equipment. It is our responsibility to see that they are trained thoroughly in every phase of the operation for which they are selected. And I also believe we must be equipped to test all men and women we hire in the future.

The other consideration in moving toward automation is that of keeping our employes and the public at large informed of our activities. As my good friend Charley Dickey, now vice president of Scott Paper Co., recently said (when he was president of B. C. Forest Products Co.): "The history of progress for 100 years has been man's ability to design machines that can do his work for him. Many things that make our standard of living the highest in the world are at our service because of those machines. Automation should never be thought of as an evil, but as our best hope to not only create more jobs but far more interesting jobs. It is a step upward from the dark days when the only measure of a man's ability was his physical endurance."

We must prepare our employes and the public for the new age. We must also see to it that our research and development organizations are geared to the future. The progress we make will be determined by the effectiveness with which our research organizations are functioning.

Our researchers must be represented in top management. They must be given an opportunity to understand thoroughly the company's technological problems and objectives.

The research team should not be looked upon as a luxury. It must not be cut back or otherwise restricted when budgets get a bit tight.

**Operations research** will play an increasingly important role in our industry. There are many areas in which OR can contribute to greater efficiency and cost reduction.

I wish to point up one thing. I am disturbed by the attitude of young technical people toward the paper industry. Few of them are attracted to it. One of the most important reasons young technicians pass up the paper industry lies in the fact that other industries are spending more for research.

**Pick up a newspaper** or magazine these days and the chances are excellent that you will read about exciting new developments in missiles and satellites, in electronics and chemicals. Paper, on the other hand, is just a "humble" product. Paper is a material we have used for hundreds of years.

I think it's high time we in the paper industry do everything we can to make the public aware of the tremendous significance of paper. We are manufacturing a product today which is produced in some 8,000 different forms and has more than 14,000 uses.

Our recruiting personnel at Scott have told me about some of the problems they encounter while interviewing young men interested in research and development. One of the biggest difficulties is that in a limited amount of time they must explain to these young people the significance of research in the pulp and paper industry. On many occasions they have discovered that students are almost completely unaware of the challenges we as an industry have to offer.

Where is the pulp and paper industry going? It is going forward into a new and exciting era full of opportunity which will be limited only by our imagination and reluctance to act positively and confidently.

With proper planning, sound investments and intelligent evaluations, I have every confidence that we in the North American industry will attain greater heights faster than ever before in our history. ■

# HOW TO DO IT

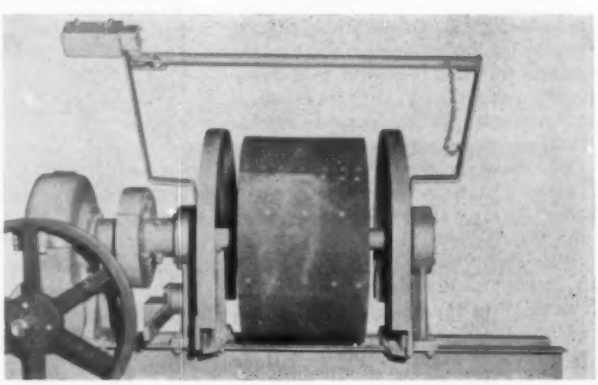
## Problem: Safety on manlift operators

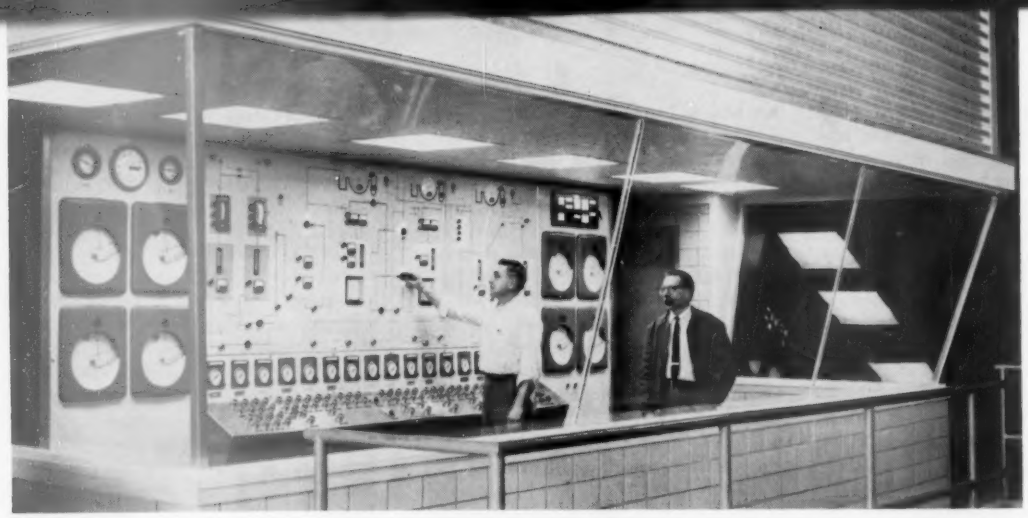
Solution: A new safety device prevents the rider from going over the top of a manlift operator if he fails to get off at the top landing.

The safety unit is a lightly supported tubular steel bar and an electrical limit switch. If a rider reached the top of the manlift some part of his body would knock off the bar. The limit switch would switch off the power, stop the lift.

Once the stop device has operated, the elevator cannot be restarted until the drop-out relay has been reset. Clearance between top of the manlift head assembly and the stop bar permits empty steps to pass over the head pulley.

Safety unit is made by Humphrey Elevator Co., Box 348, Faribault, Minn.





Semi-graphic panel is nerve center of Rhinelander's new bleach system, designed to upgrade products

# High Brightness 3-Stage Bleach

A NEW CONTINUOUS bleach plant designed for a maximum of 120 tons per day is now operating at Rhinelander Paper Co., Rhinelander, Wis. Construction began in February 1960, on the site of the company's former bleach liquor plant.

Of the many complex reasons behind the decision to spend almost one million dollars for a new bleach plant, perhaps the most important was the need for brighter and whiter pulps to expand the markets for glassine and greaseproof papers. Recognizing the package as a silent salesman, the goal therefore was to provide better and more attractive papers to place before the consumer.

The three-stage continuous bleaching process for 85% GE brightness pulps used in the new plant was tested first in the company's research department. The process appeared practical, economical, and provided a very high quality pulp. Research findings were confirmed in the old plant under conditions simulating the proposed continuous process. In addition, the experimental pulps were used in the manufacture of a broad range of Ripco papers and were found to be excellent in strength, brightness, hydrating qualities, cleanliness, and color.

Chlorination is conducted at a 3% consistency in the first stage; caustic extraction at 3% consistency or as an alternate method at 12% consistency in the second stage; and, hypochlorite treatment at 12% consistency is the final stage in the bleaching sequence.

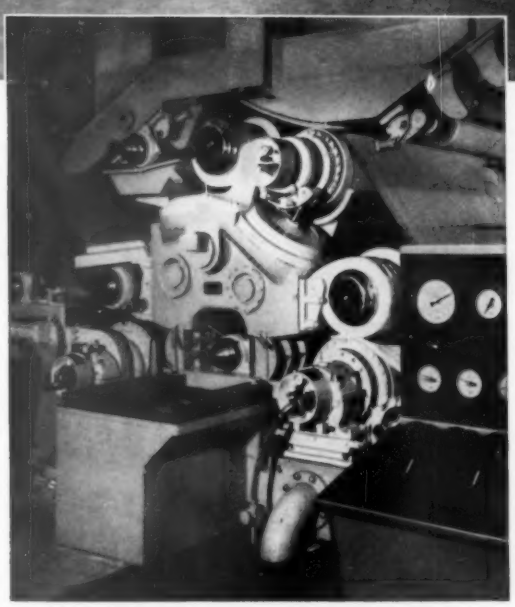
Unbleached blending and storage are provided ahead of the first stage by two 15-ton storage chests (6% consistency). Water extractors ahead of the chests thicken the screen room stock to the proper storage consistency. The second stage is unique in that the flow through the tower can be run as either a high consistency (12%) downflow stage or a low consistency (3%) upflow. Centrifugal cleaners were installed between the hypochlorite stage and the final washer.

Measuring 90 ft. wide by 80 ft. high the building was constructed of structural steel with exterior walls of insulated Transite. The extensive use of Fiberglas was employed in the new facility. Both the chlorine and caustic stage washers have ventilation hoods of Fiberglas, and Fiberglas piping was installed on all chlorinated stock lines.

Major suppliers include Wisconsin Bridge & Iron Co., Improved Machinery, Inc., Stebbins Engineering Co., Taylor Instrument Co., Goulds Pump Co., Allis Chalmers Mfg. Co., Felker Bros. Mfg. Co., Corite-Reynolds Co., Westinghouse Electric, and General Electric. General Contractor: C. R. Meyer & Sons Co. Piping Contractor: H. R. Nichols Co. Electrical Contractor: Werner Electric Co. ■

IN BLEACH PLANT, pulp mill supt. Sigge Ekman (c.) confers with asst. pulp mill supt. Elton Krogel (l.) and pulp conversion supt. Ben Nystrom. They are standing by third bleach stage washer.

AT OPENING ceremonies of new bleach plant, Benton R. Cancell, Ripco Pres. and St. Regis exec. v.p. (l.), studies panel with Ripco prod. mgr. John Lazar and W. R. Haselton, Ripco v.p. now gen. mgr., St. Regis, Tacoma.



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**also in the field**
**of paper machine engineering**

This modern automatic pick-up machine is suitable for the production of pulp wadding, sanitary papers, tissue towels and light weight M.G. papers.
Fully automatic operation of the whole machine from a control desk.
Special equipment for a quick change of wires, felts and doctors.

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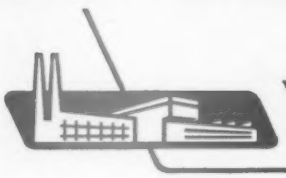

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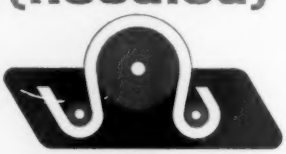
# DRI-TUFT
(needled)



# DRI-WEAVE
(woven)

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Paper Mill Suppliers, Inc. has been founded by Frank Clawson who has more than eight years experience in dryer felt sales and service.

Foremost quality of quick-drying, longer-lasting dryer felts is assured, because *Dri-Tuft (needled)* and *Dri-Weave (woven)* dryer felts are manufactured by Albany Felt Company.

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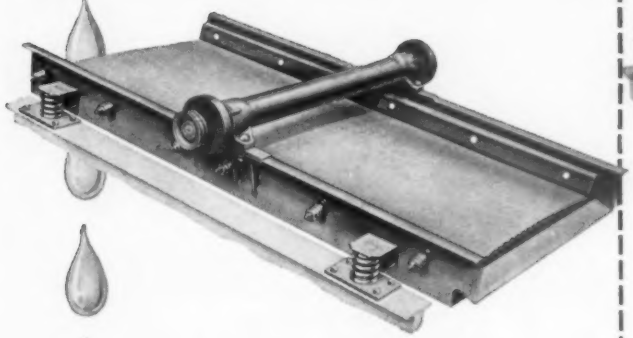
# "Shake down" your dewatering costs



# with Link-Belt "NRM" vibrating screens

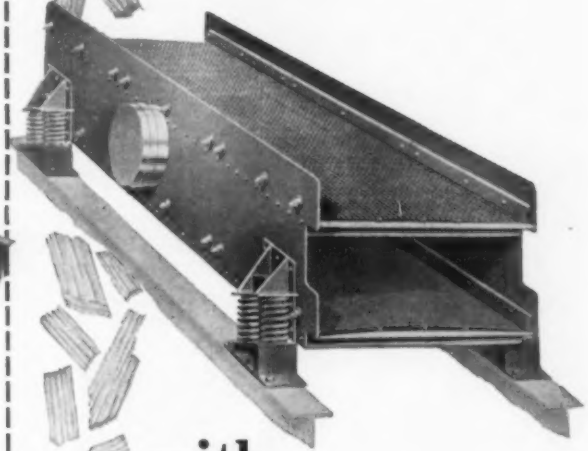
There's no faster, more economical way to dewater pulp than with a Link-Belt "NRM" liquid vibrating screen. High-energy vibration permits use of fine-mesh screen cloths . . . assures maximum solids retention, maximum liquid passage *without blinding*!

The highly effective vibrating action is produced by a two-bearing, unbalanced-weight vibrator. Its amplitude can be quickly and easily adjusted to achieve the most efficient separation. And the two self-aligning roller bearings are fully protected from dirt, moisture and corrosion by labyrinth seals and a tough steel housing.

This simple, two-bearing design, combined with overall rugged construction, gives "NRM" vibrating screens long-lasting reliability . . . holds down maintenance costs.

**BOOK 2777** contains complete information on Link-Belt "NRM" liquid vibrating screens and single, double, and triple-deck "CA" screens. For your copy, contact your nearest Link-Belt office.

# "Shake down" your chip sizing costs



# with Link-Belt "CA" vibrating screens

With positive *Concentric Action*, Link-Belt "CA" screens provide precise, high-volume chip separation. A two-bearing, unbalanced-weight vibrator imparts a sharp, uniform circular motion to every square inch of the screen decks. The bed stratifies *fast*—every particle is accurately sized . . . slivers and sawdust sharply separated.

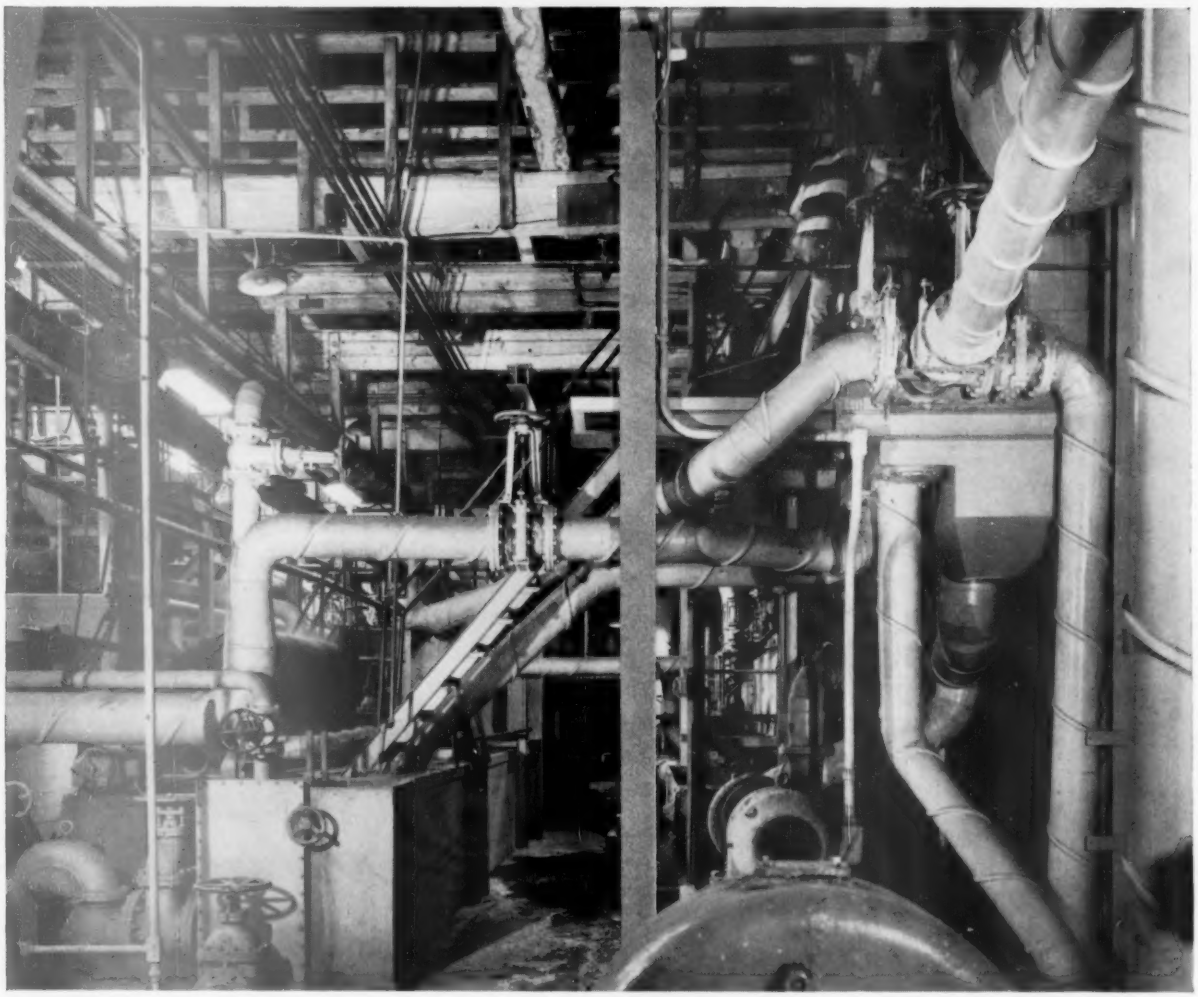
In addition to rapid, efficient sizing, Link-Belt "CA" screens offer further economy through exceptionally durable construction. Labyrinth seals protect self-aligning roller bearings from dirt and abrasive dust. Decks (of extra-thick steel tube cross-members welded to flat longitudinal members) are securely bolted to high-tensile, low-alloy side plates to form a completely integrated, rigid-frame assembly.

**LINK-BELT**

**VIBRATING SCREENS**

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Warehouses, District Sales Offices and Stock Carrying Distributors in All Principal Cities. Export Office, New York 7; Australia, Marrickville (Sydney); Brazil, Sao Paulo; Canada, Scarboro (Toronto 13); South Africa, Springs; Switzerland, Geneva. Representatives Throughout the World. 15,627

# Why It Pays to Call on NAYLOR FABRICATION SERVICE for Piping Needs



No matter what you need in pipe, fittings or special fabrications, you'll find NAYLOR fabrication service a dependable source.

NAYLOR can meet your exact specifications whether you require carbon steel, stainless steel, or alloys. Close-tolerance production assures a perfect fit on simple or complex layouts.

Pipe sizes range from 4″ to 30″ in diameter and wall thicknesses from 14 to 8 gauge. Special piping fabrications from 3″ to 44″ in diameter and wall thickness up to ⅜″. Standard fittings are available from stock.

**Write for Bulletin No. 59 or send specifications for quotations**

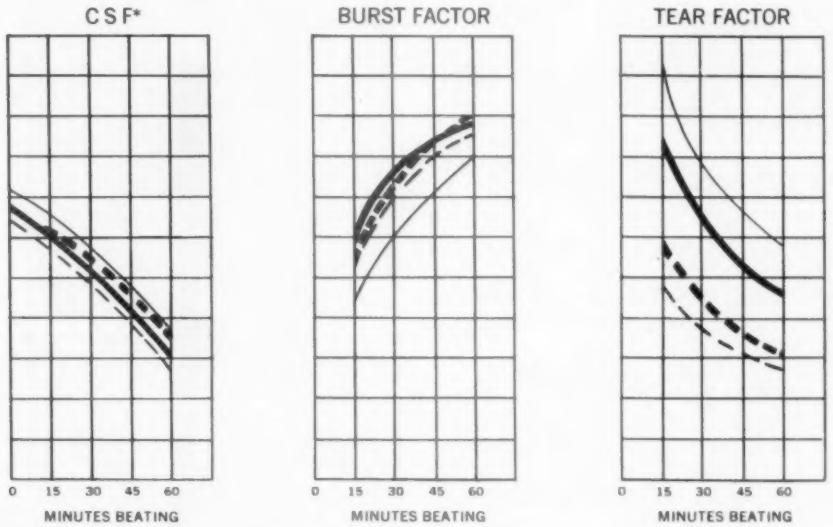
**NAYLOR PIPE** *Company*

1271 East 92nd Street, Chicago 19, Illinois

**Eastern U. S. and Foreign Sales Office:** 60 East 42nd Street, New York 17, N. Y.

# CELGAR KRAFT HAS BALANCED PROPERTIES

## STRENGTH VALUES




TYPICAL PRIME CELGAR BLEACHED KRAFT
TYPICAL PRIME NORTHERN CANADIAN BLEACHED KRAFT
TYPICAL PRIME WEST COAST BLEACHED KRAFT
TYPICAL PRIME SCANDINAVIAN BLEACHED KRAFT

*Canadian Standard Freeness

As shown by the above graphs, Celgar Kraft compares favourably with the world's best prime bleached kraft pulps in standard pulp tests.

In the all-important beating time to required papermaking freeness, it develops faster than other typical Canadian bleached kraft pulps, comparing favourably with the fast-beating Scandinavian furnish. This feature means high-volume output from repulping equipment at reduced power cost.

The bursting resistance of prime bleached Celgar Kraft exceeds or compares favourably with the best of its competitors while it is excelled only by West Coast bleached krafts in tearing resistance.

This unique and outstanding balance of properties at a high level can be achieved because of the Interior grown tree species used, the climatic conditions under which they grow and the modern process equipment installed in the new Celgar mill. These pulping characteristics, coupled with low beating time and good printability, place Celgar Kraft among the best bleached kraft pulps available in the world.

*Distributors and agents for:*

Celgar Kraft Pulps and Columbia Cellulose Viscose, Acetate and hardwood and softwood specialty sulphite paper pulps.

**Canada and United States**
(*kraft and sulphite pulps*)
Columbia Pulp Sales Limited,
1600 Dorchester Street West,
Montreal 25, P.Q.

**France**
(*kraft and sulphite pulps*)
Ekman & Cie,
36 Bld. Haussmann,
Paris 9, France.

**England**
(*kraft and sulphite pulps*)
Columbia Pulp Sales Limited,
49 Old Bond Street,
London, S.W. 1.

**Italy**
(*kraft pulps*)
Rappresentanza Ekman,
Cellulose Tvedesi,
Via Manzoni,
Milan, Italy.

**Germany**
(*kraft and sulphite pulps*)
Canadian Forest Products
GMBH,
Königstrasse 10B,
Stuttgart N, Germany.

**Italy**
(*sulphite pulps*)
W. Pauly & Co.,
Via Vittor Pisani, 5,
Milan 508, Italy.

*For information regarding other overseas agents please direct request to:*
*1600 Dorchester Street West, Montreal 25, P.Q.*

V6834-1

# COLUMBIA PULP SALES LIMITED

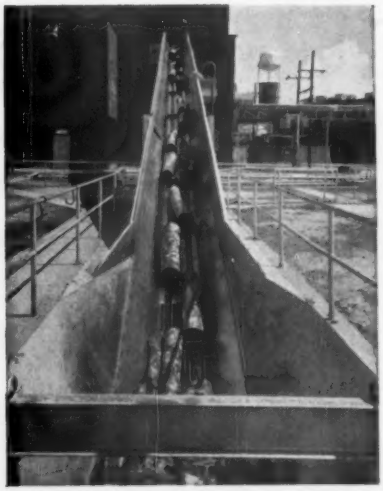
# Flume system saves $16,000.00 per year for Masonite

A shortage of water didn't stop Masonite Corporation from using a flume system with tremendous success. The system is cutting log-handling costs by more than $16,000 per year by simply floating logs from yard to mill.

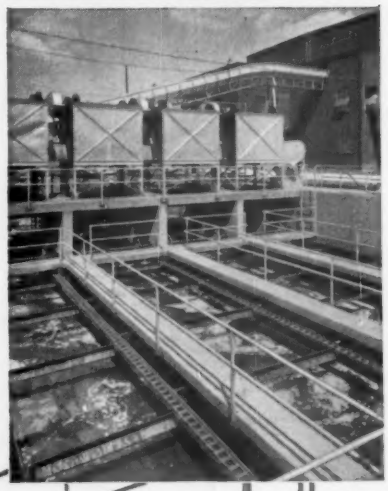
Heart of Masonite's flume system, Rex Chain and Bucket Grit Collectors and Rex Traveling Water Screens, makes it possible to re-use existing water over and over again—solving the water shortage problem and actually cutting water usage costs. The sand separating basins and screens remove 600 cu. ft. per hour of harmful sand and 3400 cu. ft. of bark per hour from the flume water. The entire system handles 60,000 gallons per minute.

**LOW OPERATING AND MAINTENANCE COSTS, LONG LIFE**

Rex Traveling Water Screens and Grit Collectors are easily installed in concrete channels behind the jack ladders in the flume system. They are ruggedly built—are designed to assure lowest possible operating costs and exceptionally long life. For complete information, write CHAIN Belt Company, 4691 W. Greenfield Ave., Milwaukee 1, Wis.



One of two 100-ft. Rex Log Ladders which carry logs from flumes to mill. System handles 44 carloads of logs daily.



Rex Grit Collectors (left) and Rex Traveling Water Screens (below) in flume system used by Masonite Corporation, Laurel, Miss. Rex equipment is designed to remove pump-damaging debris from flume water coming from two flumes, each approximately 800 ft. long, 12 ft. wide and 7 ft. deep.

REX®
CHAIN BELT COMPANY

# Logs roll faster on rubber

The "PAYLOGGER" line gives you the exclusive combination of genuine Drott hydraulic grapples on rubber tire mounting — 4-wheel-drive units with the same mobility and proven performance as the well-known "PAYLOADER" tractor-shovels.

Built throughout for hard service, "PAYLOGGER" units feature powerful, reliable hydraulic systems of the closed, pressure-controlled type . . . better balance and stability due to low-and-close load-carry position. Power-transfer differentials, power-shift transmission, torque-converter drive, planetary axles, power-steer and 4-wheel power brakes are some of the important mechanical details that make "PAYLOGGER" units outstanding in tractive ability, ease of operation and dependability on any terrain.

Two sizes of "PAYLOGGER" units are available, with Operating Capacities of 12,000 and 17,000 lbs. Your Hough Distributor with his complete service and parts departments, backed up by factory service personnel is another "PAYLOGGER" advantage. See him today.

HOUGH®

THE FRANK G. HOUGH CO.
LIBERTYVILLE, ILLINOIS
SUBSIDIARY – INTERNATIONAL HARVESTER COMPANY

HOUGH, PAYLOADER, PAYMOVER, PAYLOGGER and PAY are registered trademark names of The Frank G. Hough Co., Libertyville, Ill.

Interchangeable Attachments: FORKS to handle big loads of loose or packaged lumber; BUCKETS (up to 8 cu. yds.) for earth moving and waste handling.

THE FRANK G. HOUGH CO. 1-D-1
891 Sunnyside Ave., Libertyville, Ill.

Send more information on "PAYLOGGER" tractors with DROTT patented grapples to

Name.....

Title.....

Company.....

Street.....

City.....State.....

# The cost-saving way to handle pulpwood and small saw logs

If you load, unload, stack, or lift-carry timber weighing up to 3500 lbs, you'll be money ahead 3 ways by handling with a Case 310 *Utility* Log-loader:

First: costs less to buy
Second: costs less to operate and maintain
Third: costs you less when it "sits-idle"

Husky, quality-built Case 310 *Utility* Loader costs less initially because power and lift capacity are "just right" for medium-weight jobs . . . you don't pay extra for over-size "iron" and capacity you don't need. 310 is less expensive to operate and maintain, too, because it has a small appetite for fuel, requires fewer and smaller parts for repairs. Your lower investment automatically cuts cost of insurance and other fixed charges. And when your 310 "sits idle" in bad weather or off-season, you can figure the "cost" as little as 40% of that for over-size rigs.

Powered by high-torque Case *gasoline or diesel engine*, the 310 gives you 5815-lbs pull-power to start and skid a string of logs in rough territory . . . or to dig its fork under a pile of timber and pick up a 3500-lb load. Tractor reverses quickly with shuttle shift . . . turns short *smoothly*, with power always on *both* tracks. Log fork rolls back 23° at ground, lifts 9'5" high, reaches 67" ahead of tractor, discharges easily onto trucks or piles at 7'9" high.

Why not find out how 310 will work on your show? Call the Case Dealer and ask for free demonstration; or send coupon for detailed information.

**WOODLAND SPECIAL TRACTOR**

This load-lugging Case 310 tractor is available for work in heavy brush as drawbar unit, or with choice of four wide-mount dozer blades. Equipment includes grille and engine guard, brush bumpers, front weight, crankcase guard, transmission guard, track guards, open mud and snow grousers. Hydraulic-operated winch gives you 12,000-lb line-pull . . . winching, holding, or free spooling "on the fly" or standing. Holds 123' of 5/16" to 277' of 3/8" cable . . . fairlead optional.

J. I. CASE COMPANY
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CASE Utility

Send free information on Case 310 machines:

☐ 3500-lb Log-loader ☐ Dozers
☐ Woodland special ☐ 12,000-lb winch

Name..... Position.....
Company .....
Address .....
City..... State.....

CU-L-278

TREE-LENGTH LOGGING, an essential step in integrated logging, permits yarding of trees to a central area where end use is determined.

**Pushed by demands to cut costs, pulpwood men are looking harder at integrated logging. There are strong feelings for and against it. But many operators argue that as long as your access roads are in, and as long as you have to pay your crew on the logging chance, you might as well remove as many products as you can. Here's a fresh look at integrated logging by a panel of pulpwood managers at the meeting of the Northeast Technical Committee of the American Pulpwood Assn., at Bethel, Me.**

# INTEGRATED LOGGING

# Pro & Con

## *Diabolical development, but profitable . . .*

**JOHN BORK, Brown Co.**

INTEGRATED LOGGING is probably the most diabolical development ever conceived to increase the misery of the foreman or superintendent . . . disadvantages exceed advantages, but properly approached, integration will produce greater profits.

We are in a marketing and transportation era in which it is rare indeed that a cut cannot be integrated to some degree. . . . As remote areas dependent on water transport and far from diversified markets are opened, integration willl be necessary if maximum land profits are to be realized.

Unquestionably, intricate and sometimes unpredictable

## *Economically unsound . . .*

**LESTER W. HAZELTON, Great Northern Paper**

WE ARE IN BUSINESS . . . to force the forest into service. Therefore integrated logging or multi-product operations, except in very restricted instances, are economically unsound. We can support this.

In most of Maine, and generally in the Northeast, the tree is comparatively short in height, small in diameter and relatively limby for a large part of the stem. This average forest tree is the crux of the problem for integrated logging. Filled with fiber and chemicals beneath its bark, it offers little else to favor it in the market place. . . . Since we are now harvesting less than 20% of available hardwood growth each year, can we advance any

## Pro

technical, supervisory, and managerial problems are present: single product wood-handling equipment is no longer efficient; comfortable and smooth running production and delivery schedules are difficult to attain and maintain; market fluctuations are felt quickly; personnel must be of a higher caliber and more efficient. But if the values created exceed increases, the decision is obvious.

The spread in stumpage values of logs, boltwood and pulpwood has increased sharply while the quality gap has decreased in proportion. Spruce and fir stumpage will sell for $16/mbf and more if made into logs. Harvested for pulpwood, this would seldom yield more than $5/cord. In hardwoods the value range is greater. High quality log stumpage brings $40 or more per M, boltwood, about $10/cord, and pulpwood, 50¢ to $2/cord.

Producers (on non-company lands) recognize the differential value of various wood forms derived through integration. We recognize it in the price we are willing to pay for wood. Integration has kept wood costs out of proportion with the rise in labor, transportation and equipment costs. Other companies have recognized this opportunity . . . thereby holding pulpwood cost or value to a minimum.

### *More income from same trees . . .*

**L. B. RIDEOUT, Pejepscot Paper Co.**

FOR INTEGRATED LOGGING to be good, it should satisfy the landowner, the jobber and the mill.

Integration for the landowner leads to closer utilization which in turn means a higher percentage of the tree becoming salable, resulting in more income from the same trees.

Cutting the tree to its most usable product will affect the jobber in the same way. Higher grade logs stand a chance of a higher price. Within limits, the remaining 4 ft. wood will still bring the same price.

In two out of three instances, an integrated mill will be buying a usable product. It would be a sorry, if not a fatal day for our pulpmill to be faced with existing on "tops." I can not picture integration reaching a point where this would happen.

On our section of the coast, multi-product operations have become the usual because of the variety and availability of markets.

**BONUS from integrated logging is gained by some mills who have their own sawmills and can recover waste slabs.**

## Con

reasonable economic motive for developing cumbersome and inefficient logging operations around high quality but scarce material?

Our wood-product economy today is based on the stabilizing influence of pulpwood production. . . . Since it is a tendency inherent in integrated logging to gear production of all products to high quality material, on the basis of the prescribed logging method, the logger loses his sensitivity and response to market demands. We neglect this principle at our peril.

This is the situation the logger faces: a tree composed of low quality material—a forest of such trees with a rare individual of quality, a prince among paupers—a market place where the pauper is usually welcomed and where the prince is welcomed royally at times but often finds the doors closed. . . . Faced with a forest of an infinite number of units of lower priced material with a stable market on one hand, and with a diminishing number of high-quality units and a shrinking market on the other, he will choose for production and stability. . . . Our economic justification for single-product logging is operational and silvicultural.

On large, volume operations in remote areas, simplicity is the keystone of success, especially with increasing mechanization. By concentrating our effort on one product, I believe we get a better product. There is no diversion of better quality fiber from the lower stem into other uses. With today's keen competition in groundwood pulp and newsprint we need all the quality we can build into our pulpwood supply.

Forest management policy operates for one product . . . better efficiency and sensitivity is possible in response to raw materials demand from the mills.

The removal of other products as markets develop is done through stumpage sales.

### *Lower standard, lower grade product . . .*

**PIERRE LORRAIN, International Paper Co.**

DISADVANTAGES OF INTEGRATED LOGGING can be divided in two categories—the forestry view, and the operations view.

Integrated logging from the forestry view can lead to clear cutting of all commercial products on a tract from a sawlog to a Christmas tree, requiring more cutting supervision and marking of trees to be removed.

The method requires extra space to land and process the multiple products assembled. We have found one acre must be cleared to assemble, process and store a volume equivalent of 1,000 cords of pulpwood.

From an operation view, integration demands closer delivery schedule—a hotter logging operation. The method restricts logging largly to tree-length skidding with bucking-up at the final landing with chain saws. Rehandling problems are created at the landing where multiple products must be sorted.

Integrated logging lowers the quality standard of the lower grade products. One may have only a market for firewood instead of pulpwood, or pulpwood instead of sawlogs.

What do these disadvantages, plus others, mean translated into dollars?

It would be foolish on my part to say that integrated logging costs $5, $8 or $10 per cord; however, let me point out these simple facts. Assuming you are producing on an integrated logging job 90% pulpwood and 10% log or other material and because of integrated logging's disadvantages, your pulpwood costs are $1 per cord

higher than they normally would be on a 100% pulpwood operation. This means you are increasing your costs by $19 per MBF on the logs you produced on that job.

If, at the other extreme, you are producing logs and think you can pick up 10% pulpwood in the tops or otherwise, you are a man I have been hoping to meet but never have met in this area, because he is still convinced he can't improve his financial position that way.

My company has at times recognized the financial production handicaps of integrated logging by lowering the nominal stumpage rates by $15 and $10 on yellow birch and hard maple, respectively, to our contractors who operate principally hardwood pulpwood for use on our lands with about 10% volume.

A major step . . . to eliminate some of the disadvantages of integrated logging would be to cut pulpwood into multiples of 4 ft. where possible. This would use the same landings and the same efficient loading equipment as long logs, when sorting out can be accomplished at time of loading. This is not always possible.

Where 4 ft. pulpwood and short bolt wood is cut, they can be bunched on the same landing and sorted out at the time of loading only ■

IMPORTANT DECISION in integrated logging is whether tree should be cut for sawtimber, veneer, pole or pulpwood. A disadvantage is that this top level decision is sometimes made by the operator of the power saw.

# Pulpwood consumption tops 40 million cords

SUBSTANTIAL GAINS were made by the U.S. pulpwood industry last year. Climbing from a consumption of 38,690,519 cords in 1959, the industry topped the 40 million cord mark for the first time, using more than 40,484,643 cords in 1960. In 1958, consumption was 35,248,367 cords.

For the first six months of 1961, consumption was about 2% higher than in the same period last year. The American Pulpwood Assn. estimates the six months consumption was 20,876,000 cords. Inventory on hand is somewhat higher than at the same time last year (see table).

Leading the field last year were the Southern states, according to the U.S. Dept. of Commerce. Some 23,746,881 cords were used by Southern mills. About 19,208,342 cords were softwood and 4,538,539 cords were hardwood. This compares with 18,770,448 cords of softwoods in 1959 and 4,061,602 cords of hardwoods.

**Florida is in first spot** with 3,837,186 cords, while Georgia is second with 3,769,107.

Pulpwood consumption in the West increased to 7,970,761 cords of softwood and 297,439 cords of hardwood, for a total of 8,268,200 cords last year. The boost was all in hardwoods. Softwood consumption actually decreased about 6,000 cords.

The Northeast used 2,988,284 cords of softwood and 1,446,494 cords of hardwoods in 1960, a total of 4,434,778 cords. This compares with 2,901,489 cords of softwood and 1,409,642 cords of hardwoods in 1959.

The North Central, or Lake States, consumed 4,034,694 cords in 1960, of which 1,893,385 cords were softwood and 2,141,309 cords hardwood. In 1959, consumption was 1,879,750 cords of softwood and 2,031,175 cords of hardwood, for a total of 3,910,925 cords.

Pulpwood consumption by region for the first six months of 1961 is shown in the accompanying table.

Wood chips accounted for 15% of the raw materials used in Southern paper manufacture during 1960. The Southern Pine Assn. says that 896 lumber mills turned out 2,877,000 cords of pulp chips, an increase of more than 100 times the volume of the first chipping operations in 1952.

In 1953, when the Southern industry raced to install debarkers, pulp chip production was 25,700 cords. Three years ago, 2,500,000 cords were considered an absolute maximum for the industry. Production in 1960 was the equivalent of pulpwood volume from 10,000,000 well managed forest acres.

**Value of pulpwood produced** in the South as raw material for pulp and paper reached an all-time high of $471,020,000 in 1960, an increase of 4% over 1959, according to the Southern Pulpwood Conservation Assn. Georgia led the South for the thirteenth straight year, with total pulpwood purchases of $98,116,000. Alabama was second, with $60,394,000.

Pulpwood harvest values for other Southern states: Ark., $31,118,000; Fla., $42,008,000; La., $37,138,000; Miss., $39,472,000; N. C., $45,472,000; Okla., $1,062,000; S. C., $43,808,000; Tenn., $7,236,000; Texas, $28,528,000; and Va., $36,668,000.

The South's pulpwood harvest last year was not only 57% of the nation's total but also greater than that of any other area of comparable size in the world, says SPCA. ■

**Pulpwood Consumption for the First Six Months of 1961 compared with the same period in 1960**

| *Region* | *1960* | *1961* |
|---|---|---|
| Total U.S. | 20,409,000 | 20,876,000 |
| Northeast | 2,226,000 | 2,266,000 |
| North Central | 2,084,000 | 2,020,000 |
| South Atlantic | 7,130,000 | 7,269,000 |
| South Central | 4,831,000 | 4,943,000 |
| West | 4,138,000 | 4,375,000 |
| Inventory on hand | 5,083,000 | 5,547,000 |

Source: Estimated by the American Pulpwood Assn.

# CAT 944

## REPLACES TWO WINCH TRUCKS

## FEEDS MILL 60,000 BD. FT. PER DAY

## CUTS LOG HANDLING COSTS

**"We depend on the 944 for all our log handling,"** says L. R. Jackson, Manager of Ocala Lumber Sales Co., Ocala, Florida. "It reduced our yard equipment man-hours better than 50% and improved over-all efficiency.

"One man on the 944 unloads trucks in the yard, sorts logs according to type and size and stockpiles them. In between these chores the 944 feeds the new live chain-loader for the debarker."

This new cost-cutting system replaces Ocala's old method of unloading as many logs as possible near the debarker and dragging up other logs as needed with two old winch trucks. It was slow work. The winch line had to be hooked to each log. In wet weather the logging trucks with their relatively narrow tires would bog down in the yard or on the ramp up to the debarker and have to be winched out. The winch trucks themselves would add to the ruts when they snaked logs in from outlying stacks.

Now with the Cat loader, the trucks are weighed as they come into the yard. They never have to get off firm footing because the 944 can unload them any place and quickly separate and carry the logs to the proper stockpiles.

The 944's clean, wide-open design gives the operator excellent visibility, so he can unload trucks quickly, without snagging the tines against tires or carrier. Power shift makes it easy for him to hurry up to a truck and carefully inch under the logs. With the 944's long reach he can shove the logs well away from the truck so that it can pull out easily. Power shift transmission, automatic fork positioners and fast, live-action hydraulics speed up his stockpile-to-debarker cycles.

"The efficiency of our entire mill operation depends on steady service from the loader," says Jackson. "That's why we selected the 944. We've had experience with Cat-built equipment." Ocala uses D4s and D6s for logging and a D7 for road construction.

Ask your Caterpillar Dealer *why* the three Cat Wheel Loaders are cutting yard handling costs in mills from the Canadian Northwoods to Florida. Learn how a Cat loader can improve your log handling and save you dollars per day. See the attachments—buckets, dozers, hydraulic winches, and special forks—that add to the loader versatility.

Caterpillar Tractor Co., General Offices, Peoria, Ill., U. S. A.

**CATERPILLAR**

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

FOR EFFICIENT
LOG HANDLING...
CAT WHEEL LOADERS

# CAT WHEEL LOADERS AT WORK...CUTTING YARD HANDLING COSTS

**944 pays for itself in lower costs**

This 944 has practically revolutionized handling operations at the G. W. Martin Co., Harcourt, Ontario, Canada. Take truck loading, for example: the 944 alone handles in less than an hour an operation that used to keep a piling crew busy all day . . . it won't take long to pay for itself. Power shift transmission makes it possible for the 944—and the other Cat Wheel Loaders—to hurry through loading and dumping cycles.

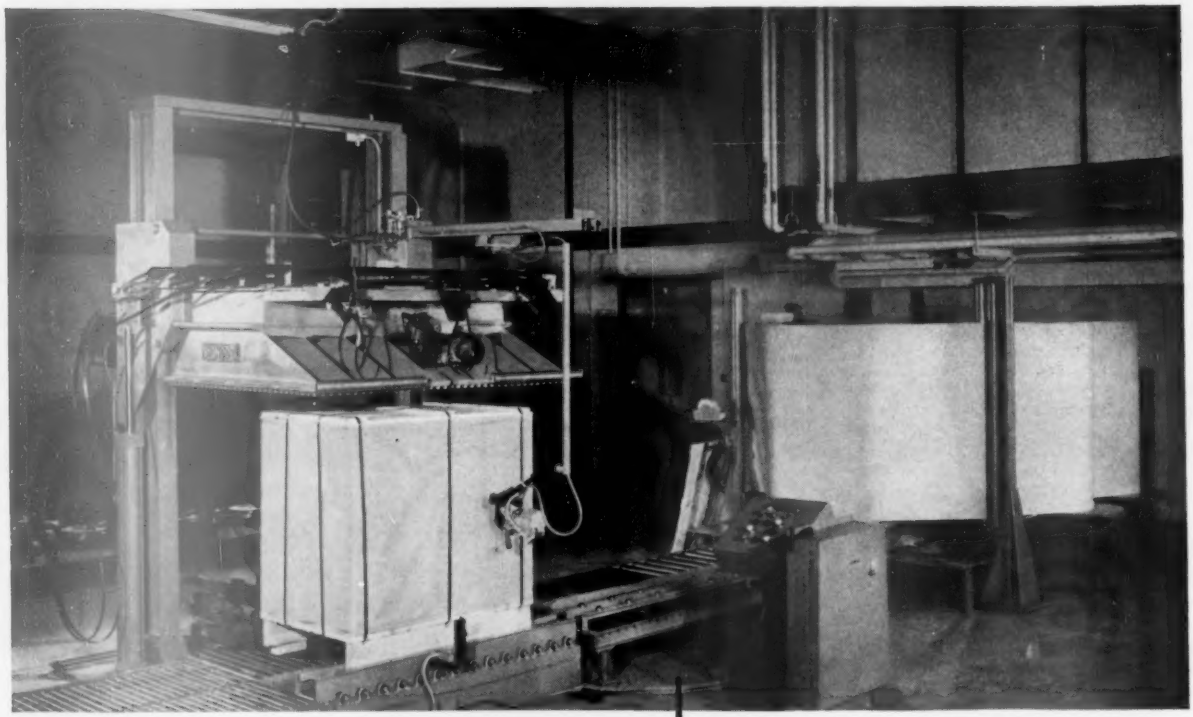
**"It's the loader we've been waiting for"**

That's the report on their new 944 from Mr. Perry Fendley, Plant Superintendent for the Scotch Lumber Co., Fulton, Alabama. "It's got speed, it's easy to run, and it's like our other Cat machines . . . you can depend on it." On their first shift they use the 944 to move logs from the debarker to storage areas; then the second shift uses it to feed the mill. The hard-working 944 totals 110 hours a week.

**One man, one machine . . . 50,000 bd. ft. per day**

The Napoleon Gagnon and Sons Mill near Quebec, Canada, uses a 944 to carry hardwood and pulpwood logs from yard stockpiles to the hot water pond, a round trip of 1500 feet. The 944 handles 5000 bd. ft. an hour. Its wide-open design and good balance are important in mill yard work—give operators excellent visibility and confidence for quick maneuvering around stockpiles and yard equipment.

# Two men wrap and strap a skid of paper in 5 minutes!



As this skid moves into the compression strapping station, the lengthwise straps drape around the load. The skid automatically stops in position in the press so that saber chutes can extend through notches in the skid runners. Then one, three, or five girth straps can be power fed to the operator, who completes the compression strapping operation while the other man prepares the wrapping station for the next cycle.

A skid load of paper drapes itself with protective paper as it moves along the conveyor. The wrapper is held across the conveyor by a pneumatic clamp on the far side, and feeds from rolls through a guide on the near side. Then the skid is stopped. Two men complete the wrapping operation. Total time: about two minutes.

## New Signode skid packaging station

***...pre-drapes protective paper***

***...pre-drapes longitudinal straps***

***...feeds girth straps through notches in skid runners***

Now production line packaging of skids of paper is a reality—a fast, smooth-flowing operation of which many parts are automatic. The entire job takes about five minutes with two men.

If this seems to mean that you can now put about 90 skids of paper through your strapping machine in 16 man-hours, you're right. What's more, your Signode man can be there in a hurry to tell you more about it. Call him, or write to Signode, today.

*Let us show you our new 20 minute 16mm color movie on compression strapping in the paper industry.*

SIGNODE

*First in steel strapping*

**SIGNODE**
**STEEL STRAPPING CO.**
**2672 N. Western Avenue • Chicago 47, Illinois**
Offices Coast to Coast, Foreign Subsidiaries and Distributors World-Wide
In Canada: Canadian Steel Strapping Co., Ltd., Montreal • Toronto

THIS IS
RAYBOND

A bleached sulfite ideal for paper specialties where exceptional whiteness, cleanliness and color stability are sought. Typical beater tests at Canadian Standard Freeness of 300: Tear Factor 1.42; Mullen Factor 101; Fold Factor 9; Opacity 66.2%.

# policy

**What supplier policy best serves the papermaker?** Consider Rayonier's . . . "we are above all a basic raw material supplier firmly committed to the paper industry's pulp demands — today and during the years beyond."

**We can take this stand because** of our • new enlarged production capabilities • 2,000,000 acres of prime farmed forests • direct manufacturer contact supported by Technical Service and Research • right products — like Raybond, another great paper-making pulp in the world's most complete line.

**Put Rayonier's policy to work for you. It recognizes your needs.**

RAYONIER
GREAT PAPER-MAKING PULPS

Rayonier Incorporated
161 East 42nd Street
New York 17, New York

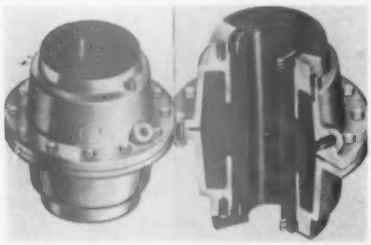
***For The World's Leading Papermakers*** — *The Complete Line of Fibers. Bleached sulfates: western softwood, western red cedar, southern pine and southern hardwood. Bleached sulfites: western hemlock, southern pine.*

# NEW EQUIPMENT . . .

starts on p. 25

## Pulp flow valves

**. . . with rubber liner**



*Applications:* Restricts pulp flow by air or hydraulic pressure.
*Features:* Full-length natural rubber inner liner and a rubber actuating muscle are hermetically sealed in a two-piece cast steel housing. Control pressure applied to outside of constricting muscle changes valve diameter for throttling.
***Supplier:*** , The Clarkson Co., 735 Loma Verde Ave., Palo Alto, Calif.

## Loader

**. . . for rough terrain**

*Applications:* Wood handling in rough or unpaved areas.
*Features:* The 8,000 lb. capacity Cary-Lift loader can hydraulically extend its forks 10 ft. 6 in. forward, enabling operations from one side of a rail car or truck, or over obstacles. Drive, power steering and brakes are four wheel operated.
***Supplier:*** Pettibone Mulliken Corp., 4700 W. Division St., Chicago 51, Ill.

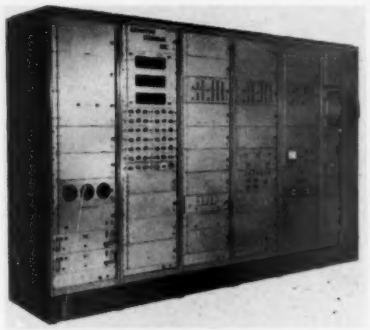
## Storage tanks

**. . . highly corrosion-resistance**

*Application:* Recommended as a processing unit where corrosive conditions require structure with high chemical resistance.
*Features:* Horizontal tanks achieve their high corrosion resistance by a special bisphenol-A polyester resin reinforced with glass fibers.
*Specifications:* Tanks are available as stock item in 1,000 gal. size, are 10-ft. long, 50 in. dia., have a wall section of ¼ in., weigh about 300 lbs. Because they are translucent, visible liquid level within the tank eliminates need for liquid level gauges.
***Supplier:*** **Justin Enterprises, Inc., Cincinnati, Ohio.**

## Digital automation

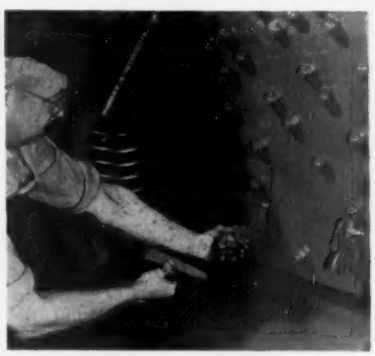
**. . . for wet processing**



*Applications:* For better quality wet pulping.
*Features:* New line of series 7000 digital data recording and alarm systems utilizes the "building block" technique. This permits minimum cost over-design and speeds orders because construction incorporates pre-assembled units.
***Supplier:*** Monitor Systems Inc., Epsco Inc. Subsidiary, Dept. 25, Fort Washington Industrial Park, Fort Washington, Pa.

## Tensioning device

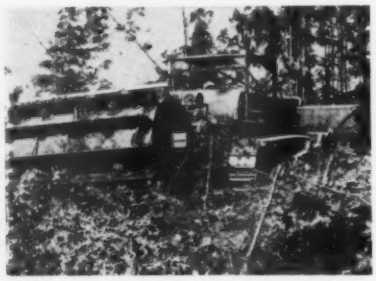
**. . . speeds screen change**



*Applications:* One size fits all types and sizes of vibrating screens.
*Features:* The device enables screen changing in only a fraction of the time formerly required and permits tensioning of cloth while screen is in operation. A 1¾-in. adjustment on each side of the deck, 2½ in. overall, is provided by the new fastener.
***Supplier:*** **Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.**

## Rolling chopper

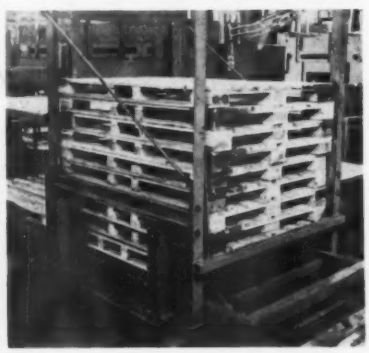
**. . . for tractors 130 hp and up**



*Applications:* Can cut, fracture and partially bury vegetation.
*Features:* A 10-ft. swath can be cut in growth up to 8 in. dia. Twelve high-carbon steel, abrasive-resistant cutting edges are reversible. When filled with water, model SS1012 weighs about 25,000 lbs, concentrating over 200 lbs. on each inch of blade. Baffle plates prevent surges of water in partially-filled drum. A boxed-beam half frame is easily detached for hauling. Other models are now available in tandem.
***Supplier:*** Fleco Corp., Jacksonville, Fla.

## Pallet handler

**. . . loads and unloads**



*Applications:* Can dispense empty pallets from a pre-loaded magazine or stack empty pallets.
*Features:* Semi or fully-automatic machine, positioned over conveyor, ejects single pallet onto conveyor to loading or storage area. Conversely, the unit will stack empty pallets from a conveyor. Single pallets are accepted and magazine stacked within headroom limitations. Fork truck can remove stack from end or side entrance. The equipment, designed for wooden pallet operations, can be adapted to existing conveyor systems or is offered as a unitized system.
***Supplier:*** **H. L. Bushman Co., Inc., 100 W. Central Ave., Roselle, Ill.**

McCannaflo valve with prestressed seats that assure leaktight closure.

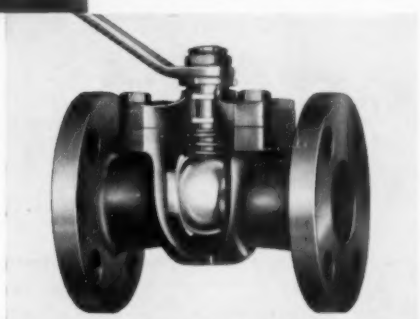
# You can see the sense to HILLS-McCANNA Ball Valve Design

## the only ball valves available for service to 1000° F

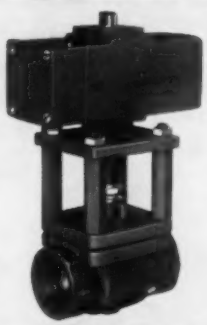
In addition to the basic ball valve advantages—exceptional wear life, negligible pressure drop, quarter-turn open and close, self-cleaning operation, and leaktight closure—Hills-McCanna offers:

- Graphitar® seats for temperatures to 1000° F
- "Fire-Seal"® seats for positive closure in event of fire
- Standard seats of Buna-N, Neoprene, Teflon, and reinforced Teflon for temperature ranges from —150° F to 600° F
- Valves for pressures from $10^{-6}$ mm Hg to 1000 psig
- 1/4″ through 12″ sizes with carbon steel, stainless steel, bronze, ductile iron, aluminum, and polyvinyl chloride bodies standard (others available). Screwed, flanged, socket, or special end connections
- Two-way flow . . . driptight shutoff in either direction . . . and double leaktight stem sealing
- Automatic and remote control with pneumatic or electric operators

The line is *complete*—write or phone for details today



Top-entry McCannaseal valve with "wedge-seat" design that automatically compensates for wear.



Compact, reliable pneumatic or electric operators for automatic and remote control.

what these valves really control is cost!

**Ask for Catalog No. 1200**—specifications, temperature-pressure relationships, $C_V$ values, dimensions, weights, materials, and service recommendations. You can select the valves you need directly from these pages. Write today.

**Valves and parts stocked nationwide by leading industrial distributors.**

**HILLS-McCANNA COMPANY**

BV61-3

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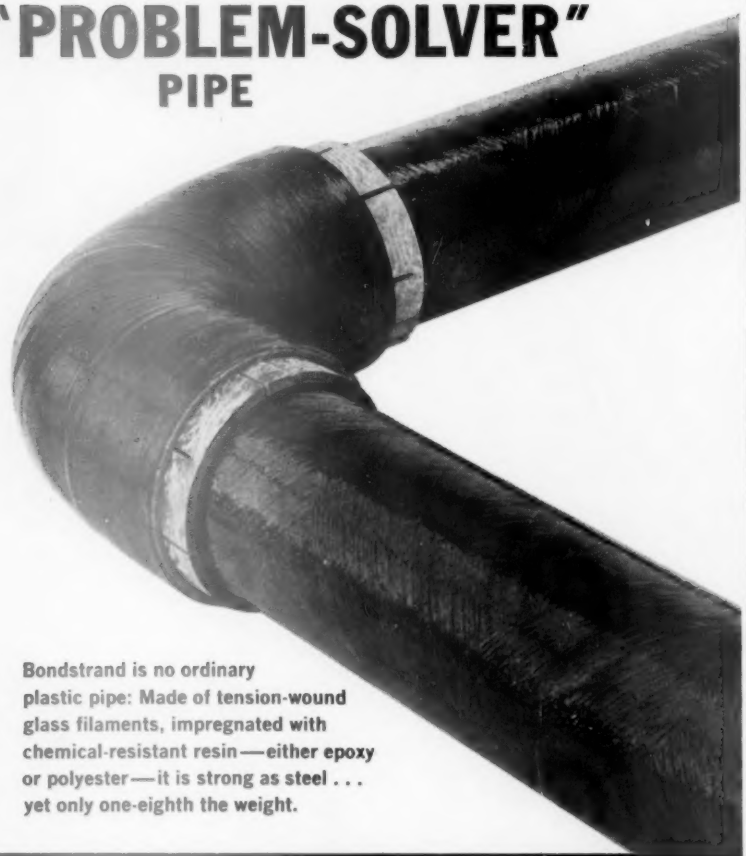
# BONDSTRAND®
## THE "PROBLEM-SOLVER" PIPE



Bondstrand is no ordinary plastic pipe: Made of tension-wound glass filaments, impregnated with chemical-resistant resin—either epoxy or polyester—it is strong as steel . . . yet only one-eighth the weight.

| THE PROBLEM | THE LOCATION | THE SOLUTION |
|---|---|---|
| Carbon black slurry destroyed schedule 40 steel pipe in 30 days | Synthetic Rubber Plant | Bondstrand installed 1959. No failure. Performance still rated excellent |
| Chlorine Dioxide water caused failure in stainless steel pipe | Paper Plant | Bondstrand installed 1958. Performance still rated excellent |
| 10% Ferric Chloride solution destroyed ordinary steel or stainless | Sewage Treatment Plant | Bondstrand installed 1958. Performance still rated excellent |
| Salt water well injection at 1600 psi | Petroleum Production | Bondstrand installed 1958. No failure. Performance still rated excellent |

*Bondstrand's total installed cost can be actually competitive with ordinary carbon steel pipe. Write for bulletin containing physical and design data.*

Amercoat CORPORATION

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South Gate, California

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360 Carnegie Ave. Kenilworth, N.J.
111 Colgate Buffalo, N.Y.
2404 Dennis St. Jacksonville, Fla.
6530 Supply Row Houston, Tex.


# SUPPLIERS

**Rice Barton Corp.**
has acquired Worcester Stamped Metal Co. and Armour-Porter Co., Inc., neighboring industries, announce President Charles S. Barton and Executive Vice President Frederick T. Coker, Jr. Armour-Porter provides Rice Barton with greater manufacturing facilities and closer control over components that go into its papermaking machines. Worcester Stamped Metal will give diversification in the growing metal-stamping field. Armour-Porter makes welded machine bases, guards, jigs, fixtures and pressure vessels. It has long been a major Rice Barton supplier. Worcester makes steel, aluminum and many new exotic metal and alloy parts for aircraft, automotive and other industries.

**Sea water conversion plant**
is under construction by Westinghouse Electric Corp. at Point Loma near San Diego, Calif. Sponsors are the U.S. Dept. of Interior's Office of Saline Water and the State of California Dept. of Water Resources. The flash-evaporation process will be used, will consist principally of spraying heated sea water under pressure into a chamber that is at a lower pressure and temperature. A portion of the water "flashes" into vapor and is then condensed, providing water that is nearly free of impurities. The remaining salty water passes through a series of additional chambers where flashing is repeated. At each additional stage the condensed, salt-free water is piped off. It will be the largest multistage flash-evaporator plant in the U.S.

**Foxboro's electronic assembly plant**
is now open at East Bridgewater, Mass. The $700,000 plant allows The Foxboro Co. to expand manufacturing and assembly of electronic Consotrol instruments. Foxboro also announced its plans to acquire the assets of Waugh Engineering Co., Van Nuys, Calif. Waugh's products, particularly its turbine flow meters, will complement Foxboro's line of measuring and controlling instruments.

Nearly 40 years ago, Albany Felt research technicians started treating certain felts with chemicals to improve felt quality and increase the production of paper.

Chemical treatments are now providing faster start-ups, improving finish, eliminating bacteria, increasing drainage and prolonging felt life.

Could our chemical treatments help you?

**ALBANY FELT COMPANY**
ALBANY, N.Y.

*Dedicated To Paper Industry Progress*

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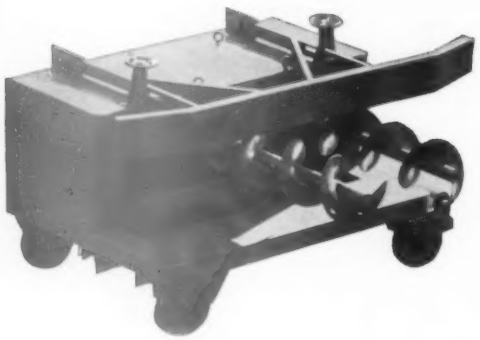
Cowansville, Quebec Cuautitlan, Mexico

TALK IT OVER WITH YOUR ALBANY FELT SALES ENGINEER

# SLAB CHIP STORAGE BECOMES POPULAR WITH IMPCO CHIP DISCHARGER



This discharger travels back and forth on rails in a tunnel under your chip pile. The action of its two counter-rotating screws withdraws the chips through a continuous opening in the side of the tunnel onto a traveling belt conveyor. A rapid and regulated flow of chips is fed directly to your digesters. No operator is required since the discharger is remote controlled from the digester floor. Feed capacities up to 100 cords per hour with 15 connected horsepower.

IMPROVED
MACHINERY INC.
NASHUA, NEW HAMPSHIRE

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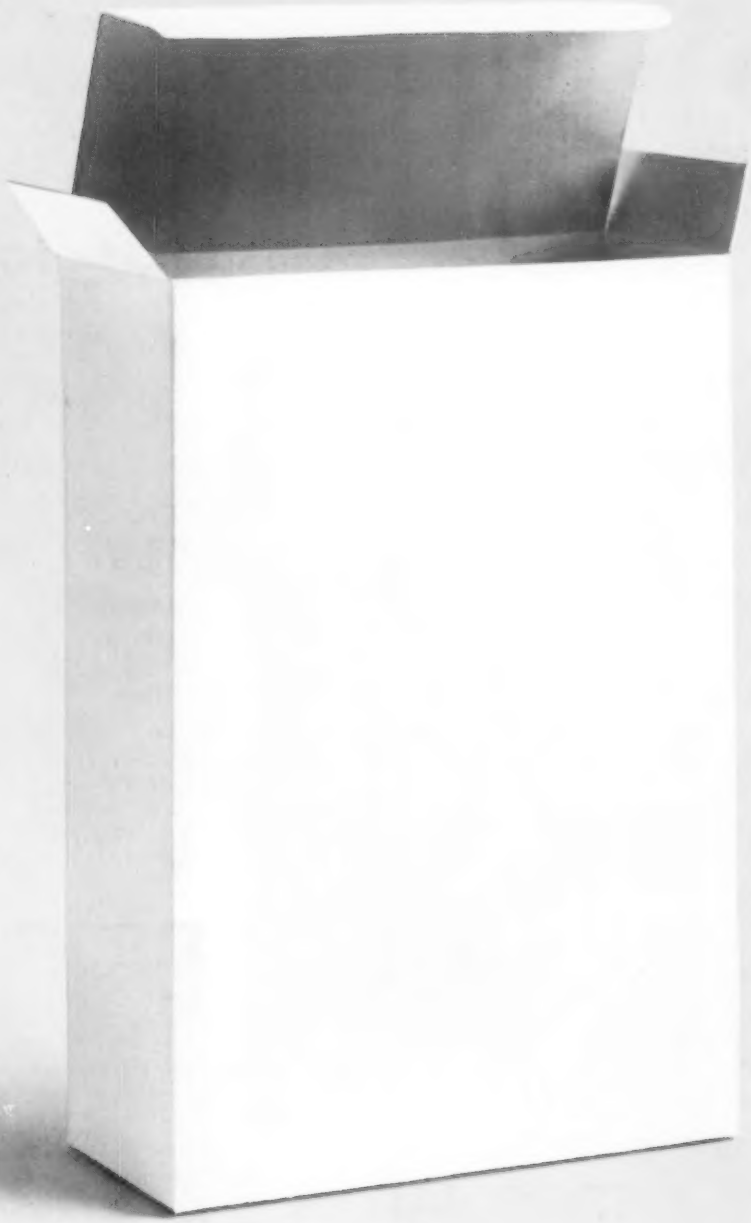


**A white package speaks for itself when it contains Unitane® titanium dioxide. The exceptional opacity and whiteness of Unitane add sparkle, brilliance and superb printability... make packages come alive with all the persuasive sales appeal that modern marketing demands. Unitane offers exceptional production advantages, too. Easy dispersion, effective water suspension, high hiding, retained whiteness... all are yours with Unitane. Ask your Cyanamid Pigments representative for details. Call him today. Whiter and brighter with Unitane.** CYANAMID

**AMERICAN CYANAMID COMPANY · PIGMENTS DIVISION · 30 ROCKEFELLER PLAZA, N. Y. 20, N. Y.**

starts on p. 27 . . . manager of the Johnsonburg mill seven years after he joined NY&P as a power department foreman in 1920.

Mr. Guinard graduated in the same Pennsylvania State University class as Mr. Bell, and also joined the company in 1937. He has been a chief chemist at the Johnsonburg mill.

Mr. Crowe joined the company in 1941, transferred to the personnel department shortly after, and, in 1950, became personnel manager. He was appointed assistant to general superintendent in 1958. ■

# Menasha Wooden Ware elects two to top posts

MENASHA, WIS.—Mowry Smith was elected chairman of the board and Richard L. Johnson president of the Menasha Wooden Ware Corp.

Mr. Smith had been president for the past 25 years, during which time the company converted from wooden containers to corrugated. It has also expanded into the manufacture of paper, plywood, lumber, wood flour and plastics. The company recently started up a 125 tpd NSSC corrugating plant at North Bend, Ore.

Mr. Johnson joined the corporation in 1955 as a controller. Previously, he was assistant controller and tax manager of Marathon Corp. He worked briefly with the Internal Revenue Service before beginning his 12 years at Marathon.

The board of directors also reelected as vice presidents George Hinton, D. C. Shepard Jr., C. R. Smith, Mowry Smith Jr., T. C. Smith, A. P. Stinchfield, and D. C. Turner.

Mowry Smith Jr. was elected secretary. Ralph T. Suess was elected treasurer. T. C. Smith and D. C. Shepard Jr. were elected directors. All other directors were reelected.

New executive officers are Carlton R. Smith, chairman of the board, and Mowry Smith Jr., president.

Mowry Smith Jr. is a graduate of Yale University and Stanford Business School. After four years in the Navy, he worked for Kimberly-Clark until 1952, when he joined Menasha in North Bend, Ore. ■

# U. of Maine Foundation elects officers

ORONO, ME.—J. Larcom Ober, vice president (retired), Scott Paper Co., was elected chairman of the board of the University of Maine Pulp and Paper Foundation at its annual meeting. Frederic A. Soderberg, vice president, Huyck Corp., Rensselaer, N.Y., was chosen president.

Manuel C. McDonald, president Great Northern Paper Co., and Ralph H. Cutting, president, Keyes Fibre Co. were named vice presidents. Ralph A. Wilkins, president, Bird & Son, Inc., and Henry W. Fales, vice president, St. Croix Paper Co., were reelected to the posts of treasurer and secretary.

Directors at large elected for three-year terms are Louis Calder Jr., executive vice president, Kennebec Pulp and Paper Co.; Eugene H. Clapp, president, Penobscot Chemical Fibre Co.; Alvah Crocker, president, Crocker Burbank & Co.; Harry C. Moore, president, Beloit Iron Works; and David W. Stapleton, president, Stowe-Woodward, Inc.

Other directors at large whose terms expire later are Frederick S. Crysler, vice president, Container Corp. of America; Philip H. Glatfelter III, president, P. H. Glatfelter Co.; Stuart E. Kay, vice president, International Paper Co.; George Olmsted Jr. president, S. D. Warren Co.; Ira D. Wallach, president, Gottesman & Co., Inc.; William H. Caddoo, vice president, Continental Can Co., Inc.; Paul E. Hodgdon, chairman, Deerfield Glassine Co.; Curtis M. Hutchins, president, St. Croix Paper Co.; Walter C. Shorter, vice president, Union Bag-Camp Paper Corp.; and Peter T. Sinclair, executive vice president, Crown Zellerbach Corp.

Ex-officio directors are William H. Chisholm, president, Oxford Paper Co.; Dr. Lloyd H. Elliott, president, the University of Maine; and Dean Weston S. Evans of the College of Technology at the University. ■

# STRICTLY PERSONAL . . .

## Midwest

**Richard E. Nelson** has been promoted to purchasing agent for the Chillicothe Paper Co. of The Mead Corp. He was assigned to the purchasing dept. in 1960 after a training program. He started with Mead in 1953 as a cost accountant at Escanaba, Mich. Mr. Nelson, born in Escanaba, majored in business administration at Michigan State University after military service from 1946-48.

**L. J. Frick** has been named mgr., industrial equipment div. sales, Midwest region, Allis-Chalmers Mfg. Co. He was mgr., general industrial sales, St. Louis district.

Casey

Krohn

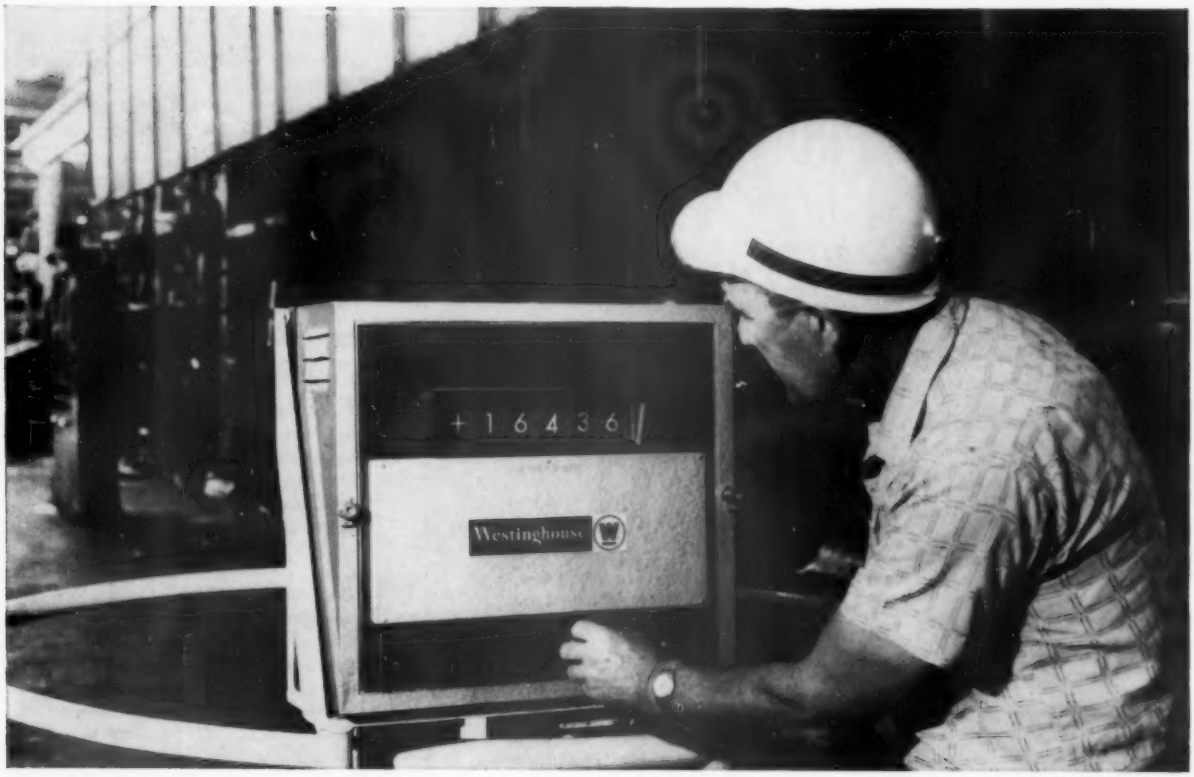
**Robert B. Casey** is now publicity dept. mgr. and **Donald J. Krohn** is assistant publicity dept. mgr., Nekoosa-Edwards Paper Co., Port Edwards, Wis. Mr. Casey was assistant sales promotion mgr. Mr. Krohn was assistant editor and photographer for the company.

**John S. Buchanan** has been appointed supt. of the Nekoosa kraft mill, Nekoosa-Edwards Paper Co., Port Edwards, Wis. He had been acting supt. since Jan. 1.

**William A. Kelly,** mgr. of Northern Paper Mills, Green Bay, Wis. prior to becoming gen. mgr. of Hawley Pulp & Paper Co., Oregon City, Ore. in early 1930s, died July 29 in Armonk, N.Y. following extended illness. Subsequent to retiring from the production field he was manufacturers agent on West Coast, representing Waterbury Felt Co. and other

# New digital draw-speed indicator slashes machine set-up time

## speeds correction of in-process variations




**Greatly reduces machine set-up time.** The new digital draw-speed indicator provides accurate indication of machine speeds and draw for each paper grade. When changing grades, draws are pre-set to those used when the grade was last run. The sheet can be established across the machine by instrumentation without further draw adjustment, completely eliminating trial and error methods. Based on mill operational data, this draw-speed equipment permits a 25% decrease in downtime on grade changes.

**Pinpoints location and cause of machine variations.** The new digital draw-speed indicator continually monitors speeds and draws—allows you to swiftly locate and trouble shoot the cause of section swinging. In addition, it isolates the source of trouble to either regulator or mechanical problems. Result: a substantial reduction in broke and off-grade sheet is realized.

Photo shows draw-speed indicator installed at the Pensacola, Florida plant of the St. Regis Paper Company.

**Unexcelled accuracy and versatility.** The completely transistorized Westinghouse digital draw-speed indicator system is free of drift errors. It allows readings on up to 30 different machine sections with a simple selector switch. It is available with a print-out data logging system to record machine operation. Modular construction is used to facilitate inspection or part replacement if necessary. A simple screw adjustment within the instrument swing-out panel will recalibrate the unit for up to 30% roll diameter changes.

For more information, contact your Westinghouse representative or write Westinghouse Electric Corporation, P.O. Box 868, Pittsburgh 30, Pa.

*You can be sure . . . if it's Westinghouse.*

J-40539

**Westinghouse**

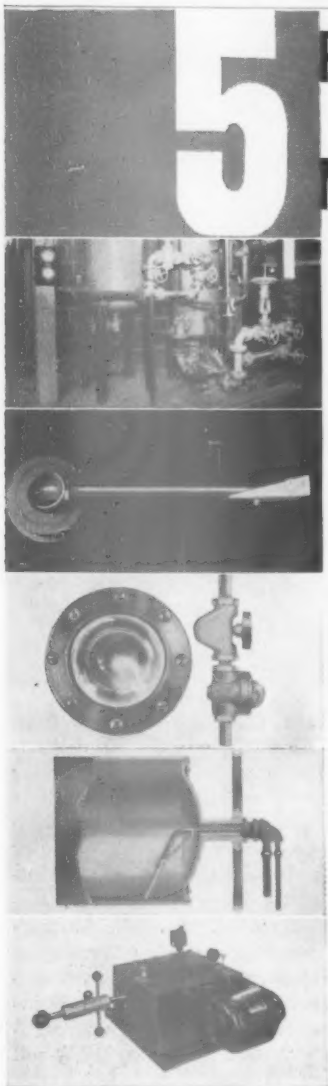
# STRICTLY PERSONAL . . .

firms. Survivors include a brother **Roy H. Kelly**, formerly of Marathon Corp., Rothschild, Wis., now retired. Both held life membership in PIMA.

**George W. Gard**, president of Mid-West-Pak, and Crown Plastic Cup, is now special assistant to **B. V. Wright Jr.**, vice president-group executive of the recently formed special products div., Champion Papers, Hamilton, O.

**Richard N. Hoerner Jr.**, marketing planning mgr., Hoerner Boxes, Inc., Keokuk, Iowa, has been assigned an assistant director for mobilization planning, containers and packaging division, BDSA, U. S. Dept. of Commerce.

**Donald V. Martin** assistant supt., Hamilton Division, Weyerhaeuser Co., Plainview, Mich., is now second vice chairman of the PIMA, Michigan division.

5 PROFIT MAKERS for the MODERN PAPER MILL

***Ross Midwest Fulton Dryer Drainage Systems***

Pays for itself in steam savings alone. Also increases production from 10% to 30% and improves quality of the sheet.

***The Cowie Scraper***

A proven condensate removal device for rotating dryers. Condensate film is reduced to a minimum, higher heat transfer, lower evacuation differentials, lower steam consumption.

***Ross Midwest Ball Sight-Flow Indicators***

Self-cleaning, front and side visibility, may be installed either vertically or horizontally, you know what's going on inside the dryer.

***Ross Midwest Auto-Flex Syphon***

The most dependable syphon, fits any syphon type dryer, always maintains proper clearance, no adjustments, minimum maintenance.

***Hydroscillators for Rewinders***

Eliminates wrinkles and hard and soft spots on the roll. Here's the key to less loss at the finished end.

*Write today for more information on these 5* ROSS MIDWEST FULTON *Profit Makers*

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MR


## South

Gayner speaks at Governor's meeting

An unusual honor was accorded to President Ed J. Gayner of Brunswick Pulp & Paper Co., in that he was invited to participate in a recent Governor's Conference on Trade and Commerce in Atlanta, Georgia.

He pointed out that to attract new industries to Georgia, it was important that a good industrial climate should be created for industries now operating in the state. He urged a state public information program to continuously keep the people of Georgia informed as to industry activities and problems.

**Charles H. Carpenter**, consultant, has moved to 10007 Hollow Way Rd., Dallas 29, Tex. He advised several Southern pulp-paper developments, including six years for Southwest Forest Industries Inc.

**Richard G. "Buck" Buchignani** has been appointed southern regional rep., industrial truck div., Hyster Co. He will assist company dealers in 11 southern states . . . **Ben Trotter** has joined the sales staff of Slaughter Machinery Co., Charlotte, N.C. He formerly was with B. F. Perkins and Son Inc.

**George H. Carson** has retired as vice president and director of Bowaters Engineering and Development Inc., Calhoun, Tenn. He had been a Bowaters executive for 23 years.

**Richard H. Roberts Jr.** moves to manager, J. M. Huber Corp. laboratory, Borger, Tex. He was with Dow Chemical Co.

## Pacific

Crown Zellerbach Corp. directors approve change of functions and responsibilities in corporate administration: **W. L. Meyer**, formerly controller, is promoted to vice pres. with broader responsibilities for corporate control and accounting services; **H. E. Nylund**, treasurer since 1954, becomes controller; **R. T. Kimberlin**, . . . turn to p. 88

A SKILLED HAND IN CHEMISTRY . . . AT WORK FOR YOU

Nopcote® C-104 is out of this world when it comes to lubricating protein, starch or latex coating colors. A fluid-stable, 50% calcium stearate dispersion, it produces a clean, dust-free coating with improved gloss—even at low calender pressures.

This lubricant improves flow and leveling characteristics to the point where a smooth, even application is possible at high speeds and on any equipment—trailing blade, roll train, air knife, or size press. It minimizes surface pattern, too, and gives your sheet an increment of salability.

This mill-proven coating additive is fluid and easy to handle. Other advantages are that it has little effect on color viscosity and permits application of high-solids, quick-drying coatings.

Nopco technical representatives will be happy to supply samples of Nopcote C-104 and set up a mill trial at your convenience.

Dispersants
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Calender Stack Lubricants
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*Manufacturing Licensees Throughout the World*

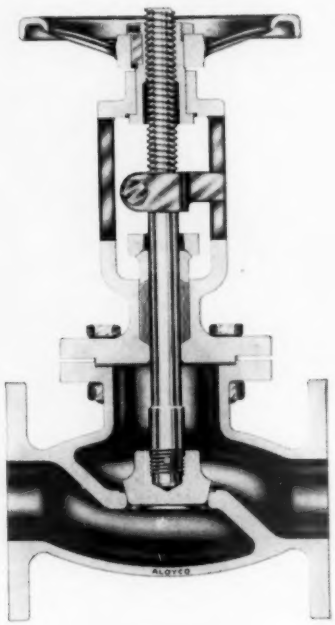


Fig. 311-B

# Do you know the advantages of the new Aloyco Globe Valve design?

The design of 150 lb. globe valves of sizes 2" and larger features a non-rotating stem, non-rising handwheel with disc assembly pinned to the stem. This is accomplished by rotating the handwheel and yoke bushing assembly and preventing stem rotating by adding a stem key which fits into the bonnet yoke. The major advantages of the new design result in:

- No spiral wear pattern on stem from hardened packing or hard deposit in stuffing box.
- Rapid visual check of throttling control by observing location of stem stop.
- No galling of back seat because of rotating stem.
- No galling between seat and disc.
- Stronger disc to stem connection.
- No spinning of disc.
- Less corrosion attack because of elimination of cavity between stem and disc.

These new design advantages are available in stainless steel and corrosion resistant alloys in sizes 2" and up. For full information write for Bulletin #7, Alloy Steel Products Company, Inc., 1316 West Elizabeth Avenue, Linden, New Jersey. O.11

Longer Lasting
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VALVES
1ST IN CORROSIVE SERVICE

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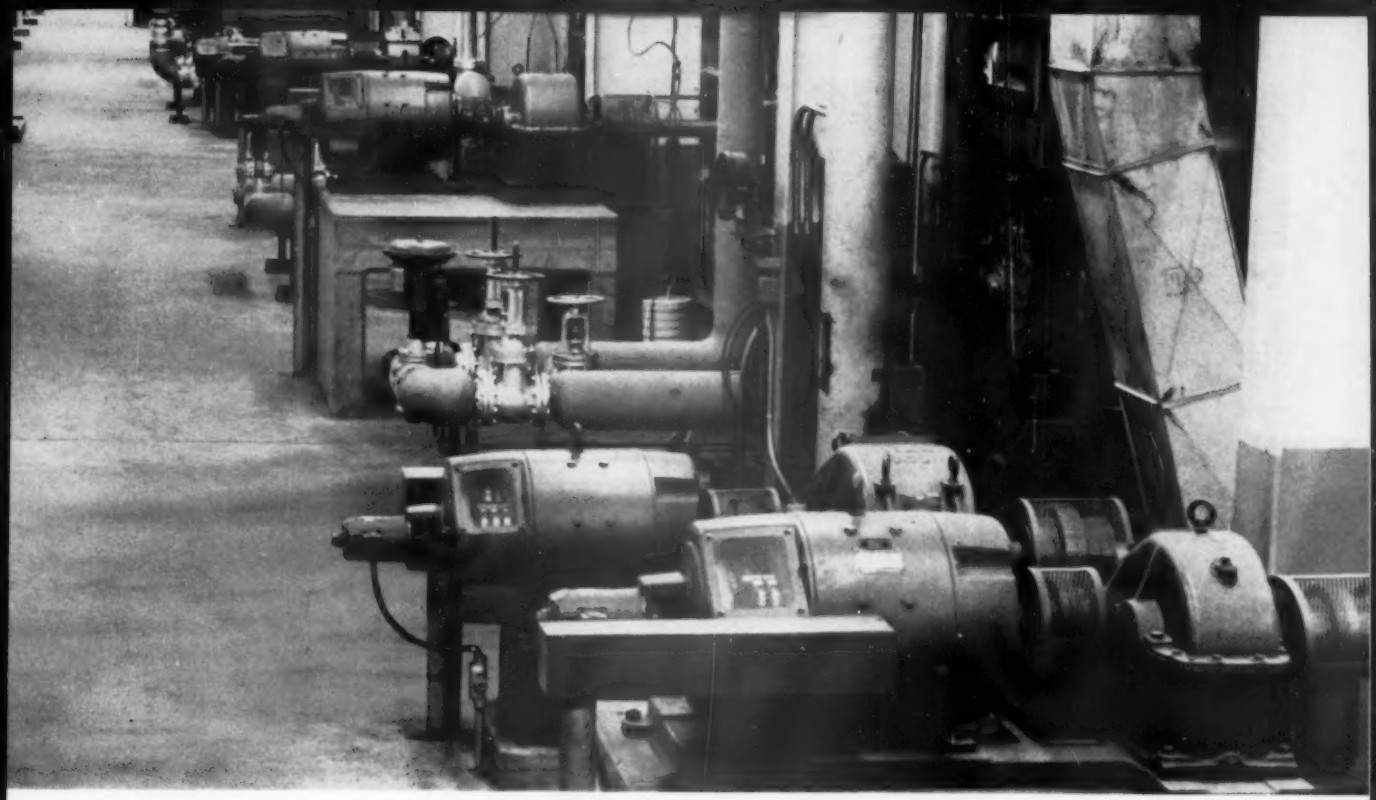

HOW WESTERN GEAR SERVES THE PAPER INDUSTRY

# PULP MILL DOUBLES PRODUCTION... CHOOSES WESTERN GEAR REDUCERS AGAIN

Tooling up for doubled production, the Georgia-Pacific Paper Company's mill at Toledo, Oregon, is now using **25 Western Gear SpeedMaster* reducers** in the number-two paper machine and attendant facilities at its newly expanded 600-ton per day Kraft mill. Georgia-Pacific Paper Company is part of one of the largest and most progressive forest products companies in the nation. SpeedMaster reducers were again specified for this modern two-machine mill to insure the fastest, most efficient mill operation possible. Eleven SpeedMaster reducers power the various sections of the paper machine, from the wet end to the reel. These include couch drive, wire turning roll drive, first press, second press, first dryer, breaker stack, bottom roll, second dryer, size press stationary roll, third dryer, calendar and reel. More Western Gear SpeedMaster reducers are in use in Pacific Northwest lumber and pulp mills than any other brand. A reputation of quality since 1888 has made them the standard drive of the industry. Give your mill the benefit of Western Gear leadership. For full information, write, wire or phone: **Western Gear Corporation,** Industrial Products Division, P.O. Box 126, Belmont, California. LYtel 3-7611.

*Registered Trademark

*on the long run...* **QUALITY COSTS YOU LESS!**

WG INDUSTRIAL PRODUCTS DIVISION

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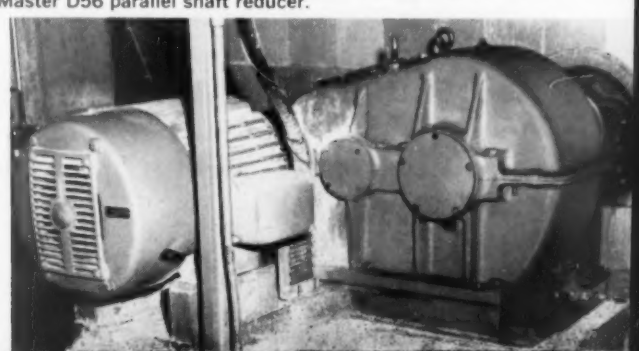
SpeedMaster S63 parallel shaft reducer driving flat box vacuum pump.

Couch pit agitator driven through a Western Gear SpeedMaster D56 parallel shaft reducer.



# STRICTLY PERSONAL . . .

starts on p. 84 . . . vice pres.-secy., assumes additional duties of treasurer; **F. M. Barnes**, asst. secretary and formerly counsel of Gaylord Div., is promoted to asst. vice pres. for administration; **G. O. Baker**, asst. controller, becomes assistant to **C. S. Cullenbine**, vice pres. for administration, with special duties relating to timber taxation and finance. . . . CZ realigns executive duties and responsibilities in management of marketing and merchandising: **King Wilkin**, vice pres. for marketing, is elected chairman of the board of Zellerbach Paper Co.; **John Gilbert**, vice pres.-gen. mgr. of Zellerbach Paper, succeeds Mr. Wilkins as CZ vice pres.-marketing; **W. J. Zellerbach**, corporate vice pres. for marketing services, is elected president and board member of Zellerbach Paper Co.

**Robert S. Douglas** vice pres., Weyerhaeuser Co., Tacoma, Wash. and **David A. James**, director public relations for Simpson Timber Co., Seattle, have been appointed to natural resources committee of U.S. Chamber of Commerce . . . **Philip E. Frankfort** formerly vice pres. in charge of Lumber & Woodlands for the Union Bag-Camp Corp. is named vice pres. and manager of the Wood Products Group of Southwest Forest Industries, Phoenix, Ariz.

### Billy Welsh sets a record

**William D. Welsh**, for many years a brilliant public relations director for Crown Zellerbach Corp. and redoubtable toastmaster of many an industry meeting, has caught the largest Crescenti trout ever taken from the home water of this species—Lake Crescent, Olympic Peninsula, in Washington state. His fish was 32 inches long, weighed 12 pounds, and was caught with a silver colored plug, 500 ft. of line and a six ounce sinker.

The Crescenti is a notorious fighter, usually caught in very deep water. Lake Crescent, also home of the Beardslee trout, named for Admiral Beardslee, is an extremely deep lake. Mr. Welsh, living in retirement on the lake, is former editor of the Port Angeles, Wash., newspaper.

Georgia-Pacific Corp. adds two to its central research laboratory staff at Beaverton, Ore.: **John Ballo**, chemical engr., was formerly associated with Fibreboard Paper Products, Antioch, Calif. and Crown Zellerbach Corp. at Camas, Wash.; **Roland Haertl**, who attended U. of Oregon on Fulbright Scholarship and later obtained his degree at U. of Munich before joining Timber Structures Inc., Portland, 2 yrs. ago. . . .

## East

**Lloyd Q. Harris** has been appointed vice president of A. T. Clayton & Co., N.Y. He will direct sales in coated, specialty and other papers.

**Clyde D. Woodburn** has been named industrial division mgr., Philadelphia district sales, Corn Products Co., N.Y. replacing **Henry Heinstadt**, retiring after 43 years.

**Benton P. Smith** has been named vice president and director of Eastern-Scott Paper Co., the Philippines affiliate of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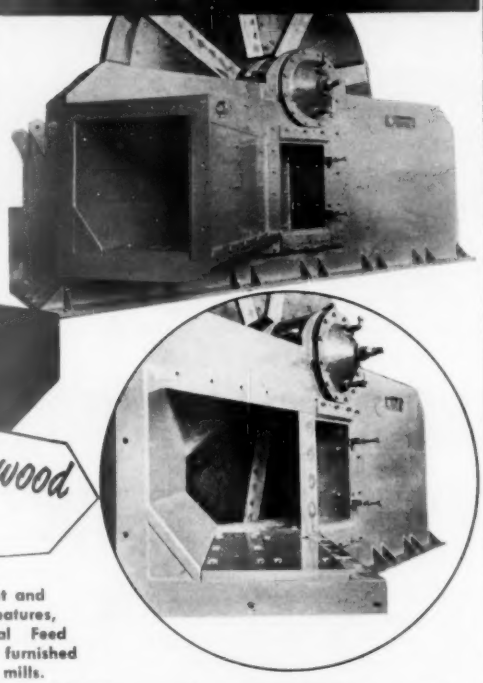
TO AID CHIP PRODUCTION



MURCO Pulpwood Chipper

With a square 26" x 26" spout and special base as its unique features, this 110" 8-knife Horizontal Feed MURCO Chipper was recently furnished to one of the nation's leading mills.

This is another example of how MURCO Round Log Pulpwood Chippers may be designed to include the desirable features proven over the years by MURCO for production requirements, plus special features for an individual mill requirement.

Into this special design go the years of continuous development and design features that contribute to outstanding MURCO Chipper performance so that year after year MURCO Chippers produce more and better chips at less cost . . . less sawdust, fewer slivers, freedom from repairs while at the same time having high production records.

When you install MURCO Round Log Pulpwood Chippers you get the latest in design, heavy duty construction . . . all backed by years of experience. MURCO Chippers are made in disc diameters from 36" to 153".



Above illustration shows one-half of the spout removed.

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A complete and detailed story on pulpwood and wastewood chippers . . . specifications of each model . . . yours upon request. Write for it today.

D. J. MURRAY MANUFACTURING CO.

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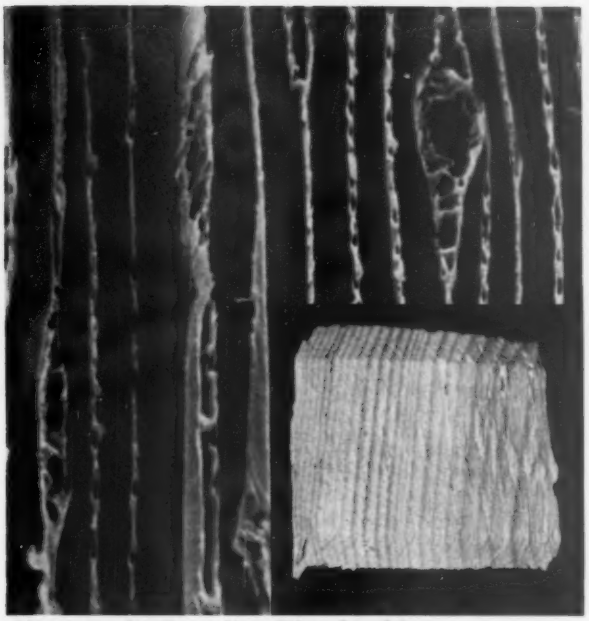
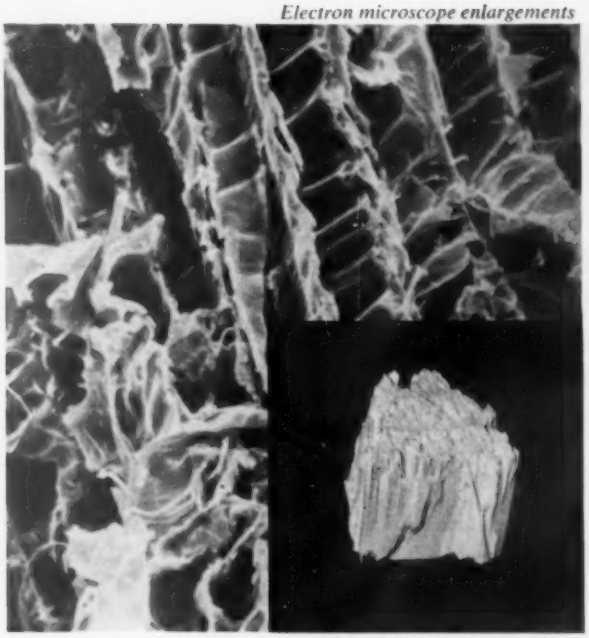
*Electron microscope enlargements*



*New Anglo-Canadian Wonderchip*



*Old Conventional Chip*

# NEW DRUM CHIPPING METHOD MAKES WONDERCHIP®

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- ☐ Yields a sulphite pulp of exceptional strength and quality
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- ☐ Chips parallel to the grain
- ☐ Brings out the best in the wood
- ☐ Little or no deformation of fiber
- ☐ Very uniform cross-section
- ☐ Screening of chips eliminated
- ☐ Knots sliced away; disappear during the cook
- ☐ All chips have same length, same thickness (⅛") within reasonable variation
- ☐ More uniform cooking due to uniformity of chips
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- ☐ Pulp approaches kraft in strength

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# STRICTLY PERSONAL . . .

Scott Paper Co., Philadelphia, Pa. For the past 15 years, Mr. Smith was the company's export sales mgr. . . . **Robert J. Henry** is now assist. sales mgr. of the Hoboken plant, Hinde and Dauch div., West Virginia Pulp and Paper Co. He replaces **James S. Fallon,** now sales mgr. at the division's Buffalo plant.

**Donald C. Storch** has been appointed corporate mgr. of purchases, American Can Co., N.Y. Marathon is the paper division of the company.

**C. W. Kyle** has joined Sprout, Waldron & Co., Inc., Muncy, Pa. as sales representative for pulp and paper equipment. He was with Bauer Bros. Co.

**Eugene E. Schweitzer,** 48, died July 18. He had been sales representative, exports job lots and seconds for the Oxford Paper Co. for 24 years.

**Burleigh M. Hutchins** has joined Bird & Son, Inc., East Walpole, Mass. as engineering vice president. He had been staff consultant for Rust Engineering Co.

**James Connolly,** construction superintendent at the West Virginia Mill in Mechanicville, N.Y., for many years, died in late July. He had been employed at Mechanicville since the 1920's and he was in charge of many projects, his last major machine installation being No. 6 before the last war.

**Thomas M. Cook,** formerly vice president, paper division, W. R. Grace Co., is now vice president for manufacturing and operations, Penobscot Chemical Fibre Co., Boston, Mass.

**Frank W. Lorey,** associate prof. of pulp and paper technology, Syracuse University, has been awarded a $3,000 research grant by the American Cyanamid Co., Stamford, Conn. He will study selective paper making chemicals . . . **Prof. C. Edwin Brandon,** director of the pulp and paper course at Miami (Ohio) University, will lecture on paper testing at the second annual paper technology institute at the University of Maine.

## Canada

**F. E. Hertha** is appointed director of planning for Columbia Cellulose Co. Ltd. and subsidiaries, Vancouver, B.C.; he will be chairman of development committee.

**Thomas Meadowcroft, Jr.,** Seattle, and **Gordon Farrell** have been elected to the board of MacMillan, Bloedel & Powell River, Ltd., Vancouver, B.C., replacing the late **A. H. Williamson** and **Harold S. Foley,** who resigned. Mr. Meadowcroft is a son-in-law of **Prentice Bloedel,** who was president of Bloedel, Stewart & Welch before its merger with the MacMillan organization and who is now a director of the corporation. Mr. Farrell, retired president of B. C. Telephone Co., was a director of M & B before the merger with Powell River Co. . . . **Ernest G. Shorter,** executive vice pres. and director, has been named to the executive committee, according to announcement by **J. V. Clyne,** chairman of the board.

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Designed expressly for YOUR machine

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# STRICTLY PERSONAL . . .

**Norman D. Bennett,** formerly assistant vice pres. sales, E. B. Eddy Co., has been appointed director of sales . . . **W. C. R. Jones,** recently appointed vice pres., mfg., has been named a director of the company as well as of the parent company, Eddy Paper Co., Hull, Inc.

**Robert J. Askin,** executive vice pres., development, engineering and services, Abitibi Power & Paper Co., died July 1.

**Percy Chatt** has been appointed to the newly created position of townsite supt., Crown Zellerbach Canada's Ocean Falls div. He was formerly construction supt.

## Suppliers

Fino

Abel

Dorr-Oliver Inc., Stamford, Conn., is forming a wholly-owned subsidiary, Dorcon Inc., for design, manufacture, fabrication and field erection of metal tanks, water and chemical storage facilities, and process and reaction vessels. Officers of the new company are **Alex Fino,** president; **K. Earl Abel,** treasurer; and **John W. Swick,** secretary. Administrative offices will be at Warren, Pa. Sales headquarters will be at Pittsburgh, Pa. **Max G. Walker** will be sales mgr.

Maclaren Anderson Simser

Penick & Ford, Ltd., Inc. Corn Refining div., has made three appointments: **S. F. M. Maclaren** to eastern sales mgr., replacing **W. S. Russell,** now assistant to the vice president; **G. M. Anderson** to southern sales mgr., replacing **P. G. Wear,** retiring Jan. 1; **L. S. Simser** to western sales mgr., replacing **L. S. Poer,** now vice president and director of marketing.

**Oliver A. Laakso,** pres. of Kamyr, Inc. engineering and research group of three Scandinavian pulp and paper makers, has been elected to the board of The Sandy Hill Iron and Brass Works, N.Y.

**William M. Crawmer** now is senior pulp and paper mill consultant, The Rust Engineering Co., Pittsburgh, Pa. He joined Rust in 1959, specializing in mill design and construction.

**F. Bruce Steketee** now is a technical service rep., Virginia Chemicals & Smelting Co., West Norfolk, Va. Formerly, he was in the Naval Air Corps and E. I. du Pont de Nemours & Co., Inc.

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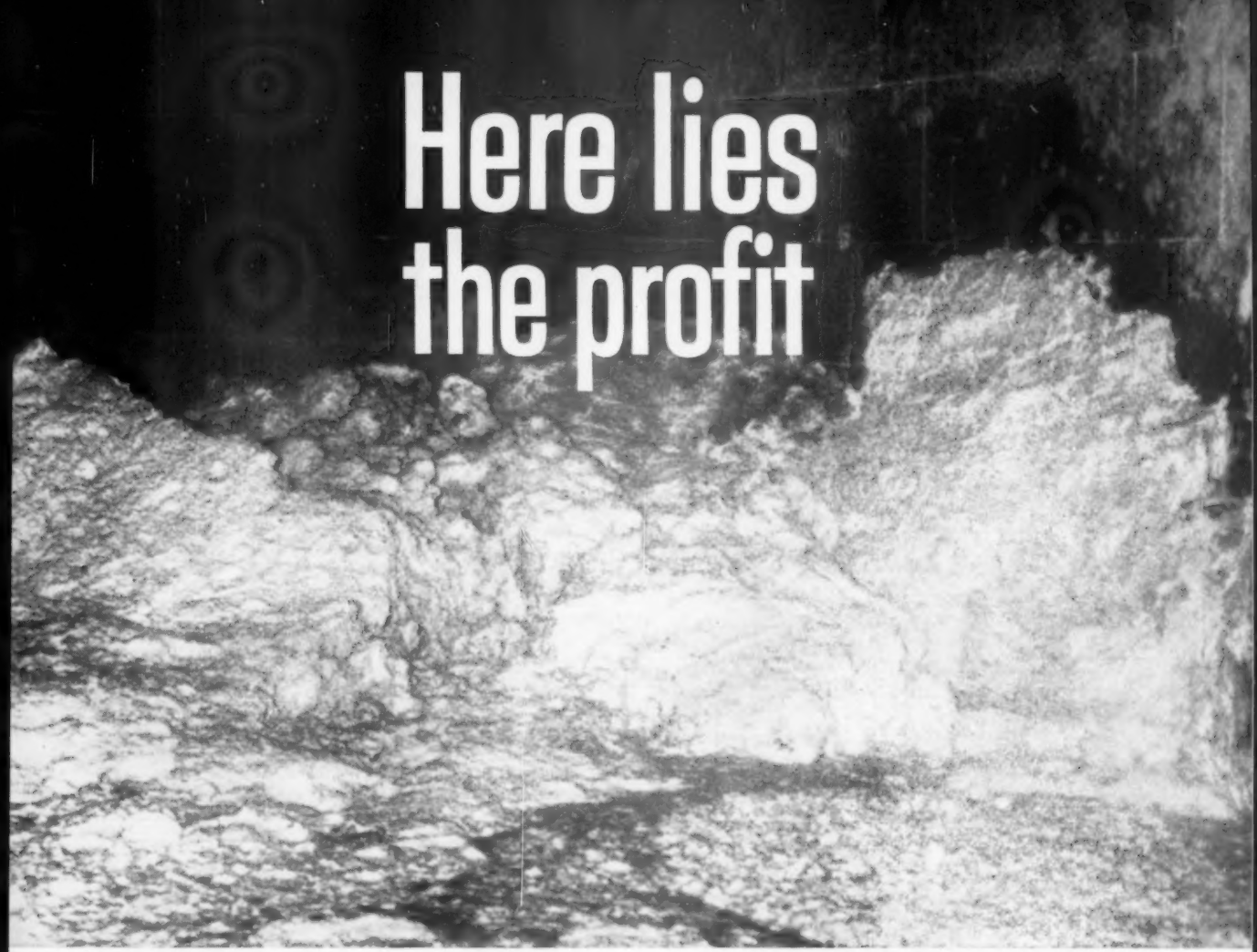
# Here lies the profit



This stock was supposed to become paper. But it got lost along the way.

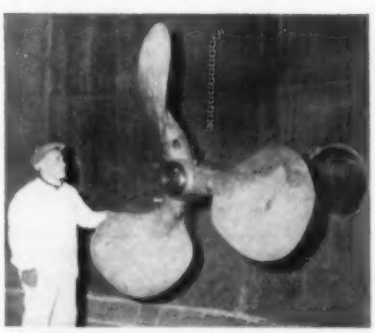
There it lies, rotting away, wasting valuable chest space and cutting down productivity. Worse, it's a constant threat to the mill's quality control.

Worst of all, it shows that this storage chest is lazy—not doing the work a chest ought to do. Without good agitation, stock is coming in and channeling right through to the pump suction. There's no control over short-cycle swings in stock consistency — without using another chest or throwing an excessive load on the controllers.

**Could any of these things be happening in your stock chests?** Your LIGHTNIN representative can show you how to resurrect that lost productivity fast—with engineered agitation that makes chests work harder, do exactly what you want them to do.

He can help you get complete uniformity in a chest—consistency that varies *less than 0.1%* (bone dry). He can help you eliminate stratification and stagnant stock. He can provide LIGHTNIN Paper Stock Agitators that give you fully predictable stock-chest performance. And he can do it on a results-guaranteed basis.

Get in touch with him soon. He's listed in Thomas' Register and in the yellow pages of your telephone directory. Or write us for complete information.



**CONSISTENCY** of stock coming from this chest is completely predictable. Stock consistency in bottom zone equipped with LIGHTNIN Paper Stock Agitator varies less than 0.1%. Stock can't stagnate anywhere in chest.

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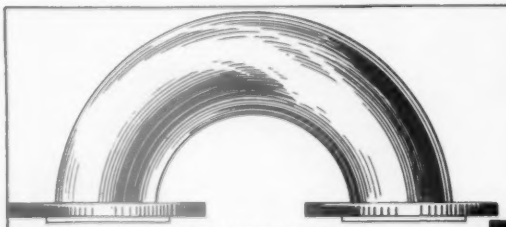

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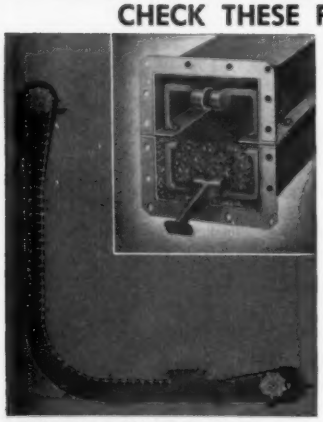

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WRITE FOR BULLETIN 358

S-A

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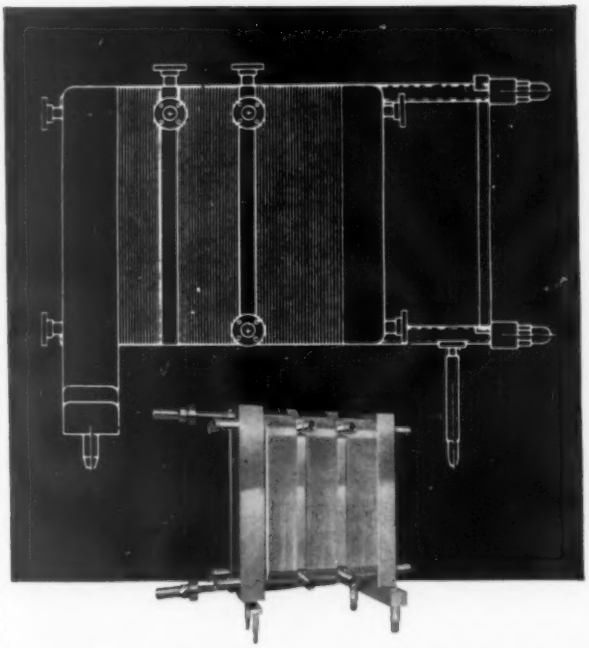

# BILLIONS OF BTU's RECLAIMED from spent sulfite liquor ...by De Laval Plate Heat Exchangers

Many pulp mills are using De Laval Plate Heat Exchangers to reclaim heat from spent sulfite and blow steam condensate. The savings are impressive. In a typical installation a 15′ x 3′ x 6′ De Laval Exchanger recovers 14,000,000 Btu hourly, and only requires 1600 sq. ft. of heat exchange surface to do the job. The all-stainless construction is unaffected by the corrosive sulfite and requires virtually no cleaning or maintenance. Savings are approximately $60,000 a year.

These units are so compact that they are usually installed in "waste" space, requiring only piping connections. Stream capacities range to 500,000 lbs/hr. De Laval Plate Heat Exchangers can be tailored to present plant needs, yet provide for very economical expansion at any time.

Write for details on these economical and efficient means to waste-heat savings. They are ideally suited to the low-cost processing essential to modern pulp-mill operation.

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# Advertisers' Index


Albany Felt Co. ..... 79
Allied Chemical Corp.
Solvay Process Div. ..... 37
Allis-Chalmers Mfg. Co. ..... 28-29
Alloy Steel Products Co. ..... 86
Amercoat Corp. ..... 78
American Cyanamid Co.
Industrial Chemicals Div. ..... 32
Pigments Div. ..... 81
American Potash & Chemical Corp. ..... 46
Anglo-Canadian Pulp & Paper Mills, Ltd. ..... 89
Anglo Paper Products Ltd. ..... 89
Beloit Iron Works ..... 35-36
Bird Machine Co. ..... 2
John W. Bolton & Sons, Inc. ..... inside front cover
E. J. Cady & Co. ..... 90
J. I. Case Co. ..... 68
Caterpillar Tractor Co. ..... 72-73
Celgar Ltd. ..... 65
Chain Belt Co. ..... 66
Classified Advertising ..... 96
Columbia Pulp Sales Ltd. ..... 65
Combustion Engineering, Inc. ..... 34
Darling & Co. ..... inside back cover
DeLaval Separator Co. ..... 95
Diamond Power Specialty Corp. ..... 45
DeZurik Corp. ..... 39
O. Dorries AG ..... 61
Dow Corning Corp. ..... 92
Dynamatic Div. ..... 14
Eaton Mfg. Co. ..... 14
W. P. Evans & Son Ltd. ..... 96
Felker Bros. Mfg. Co. ..... 94
Glidden Co. ..... 99-100
B. F. Goodrich Industrial Products Co. ..... 4
Gottesman & Co., Inc. ..... 6
Hagen Chemical & Controls, Inc. ..... 31
Hills McCanna Co. ..... 77
Hooker Chemical Corp. ..... 20
Frank G. Hough Co. ..... 67
Huyck Felt Co. ..... 33
Improved Machinery Inc. ..... 80
Ingersoll-Rand Co. ..... 30
Knox Woolen Co. ..... 94
Lamb-Grays Harbor Co., Inc. ..... 26
Link-Belt Co. ..... 63
Minnesota Mining & Mfg. Co. ..... 40
Mixing Equipment Co., Inc. ..... 93
Montmorency Paper Co., Inc. ..... 89
Mt. Vernon Mills, Inc. ..... 24
D. J. Murray Mfg. Co. ..... 88
Naylor Pipe Co. ..... 64
Nopco Chemical Co. ..... 85
Oilgear Co. ..... 8
Olin Mathieson Chemical Corp. ..... 41
Owen Bucket Co. ..... 95
Paper Mill Suppliers, Inc. ..... 62
Pennsalt Chemicals Corp. ..... 16
Perkins-Goodwin Co. ..... back cover
William Powell Co. ..... 18
Pfaudler Permutit, Inc. ..... 38
Rayonier Inc. ..... 75
Reliance Electric & Engineering Co. ..... 42-43
Rice Barton Corp. ..... 1
Riegel Paper Corp. ..... 10
J. O. Ross Engineering Corp. ..... 12
Ross Midwest Fulton Corp. ..... 84
Signode Steel Strapping Co. ..... 74
Solvay Process Div. ..... 37
Stebbins Engineering & Mfg. Co. ..... 92
Stephens-Adamson Mfg. Co. ..... 95
Tidland Machine Co. ..... 94
Towmotor Corp. ..... 91
A. P. Wagenknecht Co. ..... 90
Western Gear Corp. ..... 87
Westinghouse Electric Corp. ..... 22-23, 83
Williams Bucket Div. ..... 96
Youngstown Sheet & Tube Co. ..... 44


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# The last word

## Vince De Salvo Is Managing Editor

On our editors' page this issue, we are proud to introduce to our readers Vincent W. DeSalvo, who has assumed duties as managing editor of PULP & PAPER.

In this role he is primarily concerned with the presentation of all of the editorial material in the magazine. His responsibility is to Albert W. Wilson, editor, and Maurice R. Castagne, associate editor. The managing editor sees to it that the editorial material is received in time and put together properly.

His work is an important part of the editorial team job, greatly strengthening the ability of PULP & PAPER to serve you better. Southern Editor William F. Diehl Jr., has returned to his Atlanta base after temporarily serving in this capacity for several months. He helped to create the "new" PULP & PAPER during the early months of this year. It was last January that the new "look," the new size, and the new organization of news and feature material were introduced. At the same time PULP & PAPER, formerly a monthly magazine, began appearances "every second week."

Mr. DeSalvo was on the dean's list in two colleges where he earned bachelor of arts and law degrees, but his college magazine editing experiences won out over Blackstone and a legal career. He is 31 years old and in that time he has packed six years of intensive editorial experience.

He has come to this industry and PULP & PAPER from two years as department editor of *Petroleum Week*, an industrial magazine which created a high editorial mark in publishing circles.

We think you will be interested in

VINCE DE SALVO

a few facts about him. He was born in Bristol, Pa., but left there before he knew there was a paper mill in town! He was only a few months old when he moved to Spring Valley, N. Y., his family home ever since. He graduated from Alfred University, dean's list, with an A.B., majoring in English, and there he was a college magazine editor. Then to Fordham University, School of Law, for an L1. B., in 1955, also making the dean's list there.

He was a reporter and feature writer on a Nyack, N.Y., newspaper for a year, moving over to a paper in Suffern, N.Y., for a year and a half, where he was the managing editor. From there he went to the oil industry magazine.

He lives in the "Village" in New York City, he's single and he likes to get back in the hills behind Spring Valley when the fish are biting—when he isn't working over material to make this a more easily read and more useful magazine for you.

## PULP & PAPER Article is Useful

It is good news to know when editorial efforts in PULP & PAPER are a genuine service to this industry and useful to its readers.

Back in the May 1960 issue, John Kay, manager of production analysis and service, Rhinelander Paper Co., was author of an article on a cost control program which he developed. It told how waste was reduced by 43% in 18 months. Machine efficiencies were increased 10%. A record-gathering system was devised. Production losses were calculated, base measurements established, department and employe productivity measured. This made possible a really effective cost analysis—necessary prerequisite to cost reduction.

We don't know how many mills put in Mr. Kay's program. At least one western mill, R-W Paper Co., Longview, Wash., has done so. And now comes word that the St. Regis division at Deferiet, N.Y., is going to do so. Very likely there are others which have benefited. That is good news to our editors.

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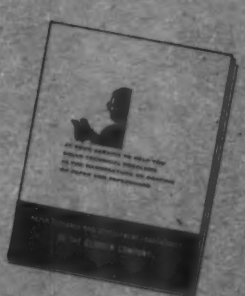

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